



Promoting sustainable consumption: the role of social norms, in-
group framing and identification

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THESIS DECLARATION

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name, in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name, for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint award of this degree.

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Olga Tarabashkina

December 2021

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ABSTRACT

This thesis by publication incorporates three papers that address ongoing debate about the influence of social and individual level factors on sustainable consumption. Comprehensive yet parsimonious conceptual frameworks were developed for each of the papers pulling together extant gaps from social marketing and sustainable communication literature. The first paper investigates the influence of three major types of social norms on moral obligation to buy a sustainable product, taking in-group and environmental identity into consideration. The second paper investigates the influence of inspiration and in-group identity on purchase intention of a sustainable product. The third paper examines the effects of in-group framing and social comparison on the intention to increase number of sustainable actions. The frameworks have undergone an extensive validation process, including quantitative assessment using randomised controlled online experiments.

Based on our findings across three studies, the sustainable messages will be most effective when emphasising: (a) both injunctive and descriptive norm appeals, (b) appealing to salient group identity, (c) feeling inspired by the behaviour of the reference group, and (d) upward comparison in a negatively framed social message. The results of our research extend previous research, providing insights into sustainable consumption and practical implications for social marketers in promoting sustainable behaviour with their marketing efforts. In particular, this research indicates that: (a) combined social norm appeals increase intention to purchase a sustainable product contingent on strength of environmental identity and in-group identity (paper I), (b) inspiration has a mediating effect on the relationship between combined social norm appeal and intention to purchase a sustainable product sooner (paper II), (c) social comparison has a moderating effect on the relationship between in-group framing and intention to increase number of sustainable behaviours (paper III). Understanding the effects of novel moderators such as environmental identity, in-group identity (paper I) and social comparison (paper III) on the relationship between social norm appeals and behavioural uptake as well as

investigating the effects of novel mediators of that influence adds further contributions (paper II) of this thesis.

The results of the third paper show an important factor in overcoming the negative effects of upward comparison to other relevant group members - positively framed descriptive norms message. The findings extend previous research, providing insights into sustainable consumption. In addition, when consumers experience downward social comparison, framed messages do not create a significant increase in consumer's behavioural uptake of sustainable intentions. Finally, this research demonstrates that the use of salient identities for positive and negative in-group framing participants can help marketers and public policy managers to increase levels of sustainable consumption.

STATEMENT OF AUTHORSHIP

I would like to acknowledge the contribution of my supervisors in each of the studies and papers in this thesis. While I am the principal and lead author for all studies and corresponding articles, I have been assisted in the writing of journal papers by Associate Professor Sally Rao Hill and Dr Bora Qesja. The contribution ratio of authors is outlined below.

Obligated to buy sustainable products: Effects of social norm and identity appeals on moral obligation

Olga Tarabashkina - 60%

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Inspired to be more sustainable! The role of social norms and social identity

Olga Tarabashkina - 70%

Sally Rao Hill - 15%

Bora Qesja - 15%

How much is enough? In-group framing and social comparison effects on intention to increase sustainable behaviours

Olga Tarabashkina - 70%

Sally Rao Hill - 15%

Bora Qesja - 15%

CHAPTER 1. INTRODUCTION

1.1 BACKGROUND TO THE RESEARCH

The concept of sustainability, introduced in 1987, refers to the ability of humans to meet the needs of the current generations without compromising future generations (Peattie and Peattie, 2009). During the past two decades, concerns have been raised about individual levels of consumption and its impact on climate change and biodiversity with a focus on sustainable consumption as a potential solution (Anagnostou et al., 2015; Cerri et al., 2018; Chabowski et al., 2011; Crittenden et al., 2011; Huang and Rust, 2011; Lim, 2017; Maccioni, 2018).

It is widely acknowledged that current individual levels of consumption lead to increasing pressures on the environment (Thogersen, 2014) in the form of resource depletion and acceleration of environmental degradation (EEA, 2010). According to a recent report by IPCC (2021), an average of 2.7 tons of waste is generated per capita each year (Blue Environment et al., 2019). Hence, understanding how product waste can be minimised through motivating consumers to purchase more sustainable products that are less harmful to the environment, has significant potential for future sustainable development of the global community (Peattie and Peattie, 2009; Anagnostou et al., 2015; Huang and Rust, 2011; Chabowski et al., 2011). The purchase of sustainable products is one of the diverse behaviours of sustainable consumption (Bellotti and Panzone, 2016; Ramirez, Jiménez and Gau, 2015) together with recycling (Kidwell et al., 2013; Ramirez et al., 2015; Katherine White, MacDonnell, and Dahl, 2011; White and Simpson, 2013), and reduction in consumption levels (Ballantine and Creery, 2010; McGouran and Prothero, 2016).

Sustainable products are defined as environmentally friendly products (also referred to as “green products” in the literature (Kilbourne and Pickett, 2008)), which cause less or no damage to the environment compared to traditional products currently available on the

market (Ottman, 1994); they also do not contribute to the pollution or depletion of natural resources and can be recycled (Shandasani et al., 1993). The importance of an urgent transition to more sustainable products has been highlighted by the Intergovernmental Panel on Climate Change, which provides a grim forecast if the necessary steps are not undertaken by individuals and governments in the near future (IPCC, 2021). While the importance of production and consumption of sustainable products is clear, due to its low consumer adoption, promoting sustainable product consumption (via purchasing sustainable products) represents to this day, one of the biggest challenges faced by social marketers and behavioural scientists (Maccioni, 2018). Thus, it is important to understand the factors that influence consumer's purchase intentions when it comes to sustainable products.

Early research on sustainable product purchases started in the mid-1990s and focused on identifying the socio-demographic characteristics of consumers who purchased sustainable products. The research, however, lacked cause-and-effect investigation and looked at a limited set of socio-demographic variables (for a review of the earlier studies see Diamantopoulos et al., 2003). In the mid-2000s, there was a new surge of research interest towards environmentally friendly products (Bamberg and Moser, 2007; Diamonthopolus et al., 2003). Research carried out since the mid-2000s has predominantly looked at consumers' internal factors such as attitudes/concerns (Barbaro et al. 2015) and individual values as drivers of sustainable product purchases (Gatersleben et al., 2014) (refer to Table 1). However, attitudes and values have shown to be ineffective in stimulating actual behavioural change, signalling an attitude-behaviour gap which does not support their usage in future research (Bellotti and Panzone 2016; de Barcellos et al., 2011). While previous research sheds some light on the impact of internal factors, the nexus has not been examined to the best of the author's knowledge. Moreover, even though internal and external consumer factors often interact to influence sustainable consumption (Bamberg and Moser, 2007), research on external factors is minimal. This results in a gap in our understanding as to how both internal and external consumer factors interact in influencing sustainable product purchase intentions (Bamberg and Moser, 2007) and how they can be used to devise an effective social marketing campaign.

Within the external consumer factors domain, knowledge about the effectiveness of using social norms in driving sustainable product consumption is lacking. While extant research has provided insights into how some social norm appeals may influence sustainable behaviour, it only investigated a limited number of moderators and mediators of norm appeals in the sustainable consumption domain and calls for further examination. Scholars are yet to fully explore the mechanism through which different social norm appeals influence consumers (White and Simpson, 2013). Considering that the mechanism through which different social norm appeals influence sustainable consumption needs further exploration, this work will examine under which type of social norms, group identity and environmental identity can impact purchase intentions of sustainable products.

Due to the disparate and largely inconclusive literature on the topic in the sustainable realm, this thesis aims to add clarity with findings from studies on different drivers of sustainable behaviours' intentions which include 1) social norm appeals, 2) group identity and environmental identity, 3) inspiration, 4) message frame and social comparison. Social norms play an important role as an external factor that influences behaviours of individuals. Group identity and environmental identity represent the internal factors that require a more in-depth understanding as there are no insights under what conditions (what type of social norms) these two types of identities can influence purchase intentions of sustainable products. Moreover, the role of motivational states, such as inspiration, in influencing sustainable consumption have received limited attention in extant research. Furthermore, previous research on the behavioural implications of normative messages has failed to examine an important distinction between two approaches to message wording (positive in-group frame and negative in-group frame) that could greatly affect communication effectiveness.

1.1.1 Social norms in sustainable research

In social psychology, modifying one's behaviour to match it to the behaviours of others is seen as an important adaptive element (Gockeritz *et al.*, 2010). According to normative conduct theory, three types of social norms regulate an individual's behaviour (Cialdini *et al.*, 1991). Descriptive norms reflect what individuals think other people are doing or consider to be a prevalent behavioural pattern (Jacobson, Mortensen and Cialdini, 2011). "Ought to" injunctive norms reflect what individuals believe others think one should do (White and Simpson, 2013). These social norms typically reflect an individual's perception of what others approve or disapprove of (Cialdini *et al.*, 2006). Combined norms contain elements of both norms: descriptive and injunctive (Schultz, 2007).

Previous research has consistently shown that for a social norm to be effective in regulating one's behaviour, it must be salient: either the norm needs to be presented to consumers (who is doing it, when and why), or consumers need to clearly follow an existing social norm (Cialdini *et al.*, 2006; Kallgren *et al.*, 2000). However, there are variations in the motivational mechanism through which each type of social norm influences individuals. For example, descriptive norms convey information about behaviours that receivers might copy if they appear to represent the most adaptive behavioural pattern. Descriptive norms may represent a typical behaviour in a group (Cialdini *et al.*, 1991; Smith *et al.*, 2012; Thøgersen, 2006), thus offering a standard for modelling one's own behaviour (Clapp and McDonnell, 2000). Descriptive norms mostly inform, thus helping consumers navigate a complex social environment. For example, others help determine a "correct" course of action for someone seeking Baggage Claim in an unfamiliar airport (Deutsch and Gerard, 1955; Gockeritz *et al.*, 2010). Descriptive norms also imply that individuals accept behavioural information as a true reflection of reality (Deutsch and Gerard, 1955), and that individuals do not like to deviate from prevalent behaviours (Schultz, 2007).

Injunctive norms influence individual behaviour through a different motivational mechanism of rewards (compliance with approved behaviours) or punishment (non-engagement in approved behaviours) (Smith *et al.*, 2012). Such social norms have a

normative function: social influence occurs because individuals want to conform to group expectations (Deutsch and Gerard, 1955). In anti-littering campaigns, purely injunctive norm appeals are more motivational than purely descriptive norm appeals (Masson and Fritsche, 2014). Combined norms stimulate behaviours by highlighting that the behaviour is commonly practiced, and approved by others (Göckeritz *et al.*, 2010). Combined norms appeals are similarly significant on conservation behaviour (Göckeritz *et al.*, 2010) and grass-cycling (White and Simpson, 2013). Past concepts of social norm appeals assumed a direct effect on behaviours, with no underlying mechanism that leads to normative influence. The current project proposes that social norms may influence consumers more than pure product functional appeals by creating greater moral obligation to purchase a sustainable product (paper I).

1.1.2 Group and environmental identity in sustainable research

Identity is defined as a self-concept, including personal, social and other self-perceptions (identities) (Arnett *et al.*, 2003; Oyserman, 2009). The underlying assumption behind a highly-salient group identity is that individuals want to behave consistently with group norms because this facilitates meeting interpersonal goals that are consistent with one's self-perception (e.g., being an in-group member) (Smith and Louis, 2009). Although social psychology has documented the influence of group identity (Blanton *et al.* 2008; Masson *et al.*, 2016), marketing research rarely analyses this factor in sustainable consumption research.

Environmental identity is the extent to which one sees oneself as a type of person that cares and acts in an environmentally-friendly manner (van der Werff *et al.*, 2013). Similarly, a strategy of strengthening environmental identity is recommended to promote pro-environmental actions (van der Werff *et al.*, 2013). Not all group memberships are equally salient, since individuals may experience different degrees of strength of group self-identification or self-identity depending on the perceived group/issue importance (Jetten, Spears and Manstead, 1997). The latter affects perceived psychological distance

of oneself from social groups or issues (Masson and Fritsche, 2014). This perceived distance typically increases from in-group members to out-group members (Trope & Liberman, 2003) and has implications for how individuals interact with others and whether they choose to engage or abstain from behaviours (Masson and Fritsche, 2014). According to identity theory, situationally-cued identities can influence subsequent cognitive shortcuts and behavioural responses by prompting individuals to take actions that are not necessarily beneficial to them, or would not be performed otherwise (Oyserman, 2009). We argue that the salience of two types of identities impacts the effectiveness of social norm appeals in eliciting moral obligation (paper I) and intention to purchase a sustainable product as well as time lapse to purchase (paper II). Paper I posits that the salience of group identity (high vs low group identity) moderates the effects of social norms (descriptive, injunctive and combined) on moral obligation, via motivational mechanisms that are different for consumers with high and low environmental identities. Paper II suggests that inspiration as a motivational state, fully mediates the relationship between social norm appeals and outcome variables; and combined (descriptive and injunctive) norms produce greater inspiration than other types of appeals. Additionally, group identity moderates the relationship between combined social norms appeal and inspiration with the relationship being stronger when the group identity salience is high.

1.1.3 In-group message framing

The framing effect, resulting from message or valence framing, is described as a cognitive bias emerging from the way information is communicated or presented (Entman, 1993; Plous, 1993; Levin et al., 1998; Avineri and Waygood, 2013). Framing refers to the process by which people develop a particular conceptualisation of an issue or reorient their thinking about an issue (Chong and Druckman, 2007). The notion of in-group framing is related to how individuals and groups perceive and communicate about their reference group (Dahl, 2015). In-group framing has an important impact on how people think and behave as part of the relevant group (e.g. Putrevu, 2001; Lindeman and

Verkasalo, 2005). When communicating contested issues, such as climate change, in the media, the reporter's in-group framing of the issue is likely to influence readers' perception of it (Dahl, 2015). In-group framing also influences how individuals react to social norms information. Research has shown that communicating a descriptive norm that gives people cues about an expected behaviour (or inappropriate behaviour) through written information can induce conformity (Schultz, 1999; Nolan et al., 2008). Although some research has been done in the field of in-group framing in various contexts such as politics, consumer behaviour, health or environmental communication, many contradictory results exist and the answer to which in-group framing (e.g., positive or negative) leads to more behavioural change in a specific context is not consistent (Entman, 1993; Levin et al., 1998; Piñon and Gambará, 2005; Entman et al., 2009; Spence and Pidgeon, 2010; Cheng et al., 2011; Kim and Kim, 2014; Baxter and Gram-Hanssen, 2016). Considering the vital role of message framing in information search and decision making in sustainable context (Avineri and Waygood, 2013), this thesis further explores how the use of in-group message framing influences future intention to perform more sustainable actions (paper III).

1.1.4 Social comparison

Social comparison theory posits that people are generally motivated to evaluate their opinions and abilities and that one way to satisfy this need for self-evaluation is to compare themselves to others (Festinger, 1954). Information garnered from these social comparisons can then be used to provide insights into one's capacities and limitations. The direction of social comparison could be of two types: upward and downward. A comparison to someone who is superior constitutes an upward social comparison (Wheeler, 1966). The comparison with someone who is underperforming is defined as downward social comparison. The theory further posits that upward social comparisons have more negative self-evaluative consequences when one is outperformed by someone who is relevant or psychologically close (vs irrelevant) and when one is outperformed in an important (vs unimportant) domain (Pelham and Wachsmuth, 1995; Tesser and

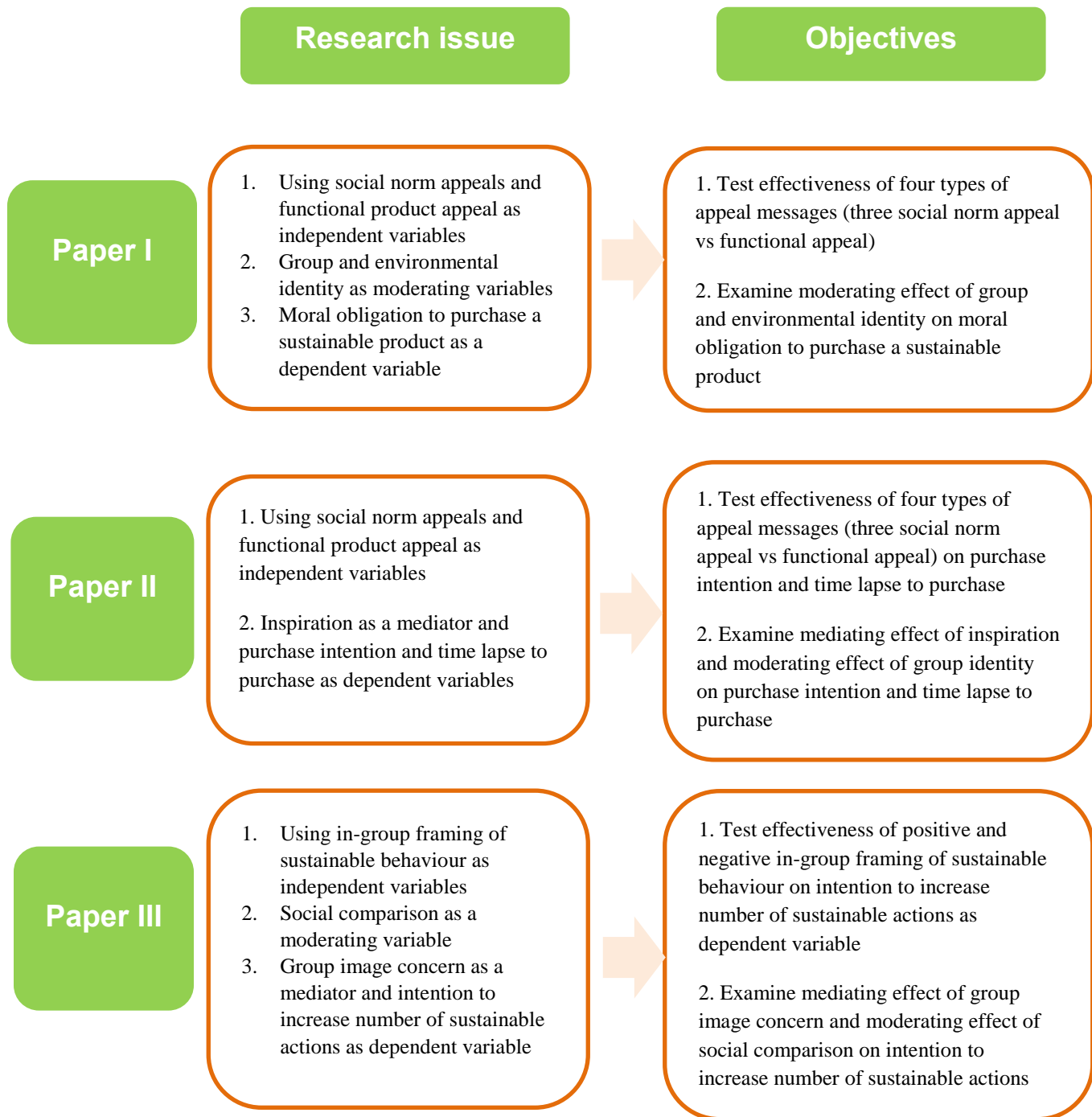
Collins, 1988). In the current research, the performance domain of interest is sustainable behaviour. Paper III focuses on investigating the effect of two types of social comparison, on future intentions to increase number of sustainable actions, contingent on type of in-group message framing.

1.2 OBJECTIVES OF RESEARCH

The aim of this research is to develop a better understanding of consumer's external and internal motivators that push consumers to behave more sustainably. Comprised of three papers written in journal article format, this thesis uses online experiments to investigate the effect of social norms, environmental and group identity, and in-group message framing on the outcome variables across multiple studies.

Figure 1 summarises research objectives of the three studies according to research issues.

Figure 1. Summary of three papers



Research Questions Addressed in Paper I:

What effect do social norm appeals have on moral obligation to purchase a sustainable product?

What is the effect of individual's environmental identity on the influence of these appeals on moral obligation?

How does consumers' group identification moderate the relationship between social norm appeal and environmental identity?

Research Questions Addressed in Paper II:

How do social norm appeals influence purchase intentions and time lapse to purchase directly and indirectly via inspiration?

How does consumers' group identity moderate the relationship between social norm appeal and intention to purchase a sustainable product as well as time lapse to purchase?

Research Questions Addressed in Paper III:

How does employing social comparison in sustainable marketing increase the sustainable behavioural intentions?

How does in-group message framing influence future intention to increase the number of sustainable actions directly and indirectly via group image concern?

How does the direction of social comparison moderate the relationship between in-group message framing and intention to increase the number of sustainable actions?

How does group image concern mediate the relationship between in-group message framing and intention to increase the number of sustainable actions?

1.3 THE PROJECT'S RESEARCH DESIGN

Two experiments were used to address the research questions. The use of experimental design is appropriate in this research as it provides superior capacity to demonstrate hypothesised causality and association of key variables, clear interaction effects that can be better understood, and reliable conceptualisations that can be developed (Kehet al., 2015; Leunget al., 2005; Yaprak, 2008). The first study used a four-factorial design: functional product appeal (control group) vs social norm appeals (i.e., descriptive norms vs injunctive norms vs combined norms between-subjects experimental design). The sample consisted of 201 participants (103 females and 98 males) ranging in age from 18 to 76 years. Participants were randomly allocated to one of the four experimental conditions and evaluated an advertisement for a new sustainable product. The first study's results were used for paper I and paper II. The second study used a three-factorial design: control group vs positive in-group framing vs negative in-group framing between-subjects experimental design. Five hundred sixty participants (285 females and 275 males) ranging in age from 18 to 76 years from Australia took part in the online experiment. The second study's results were used for paper III.

1.4 EXPECTED CONTRIBUTIONS

The first study provides evidence that social norm appeals, when directly compared to functional product appeals, can prompt greater moral obligation to purchase sustainable products. Applying normative focus and social identity theories, it is found that the impact of both moderators (environmental and group identity) on the relationship between social norms appeals and moral obligation is significant. Specifically, the

findings suggest that consumers' moral obligation is influenced the most by the combined norm appeal message in situations when individuals have high levels of group and environmental identity. This study aims to contribute to normative focus theory and sustainability research as well as marketing literature. To the best of the researcher's knowledge, paper I is the first that provides empirical evidence of the role of all four types of appeals in social norms research as well as empirical evidence of a moderated moderation (interaction between group identity and environmental identity) on the sense of moral obligation. The findings open up ways to design marketing and advertising campaigns that recognise and utilise knowledge of social norms impact and its moderators on sustainable purchase behaviour.

The second paper extends the results of the first by identifying a novel mediator of the normative influence of social norms. By investigating the role of inspiration as a motivational state, the findings demonstrate that when consumers perceive social norm appeal information as inspiring, the purchase intention is higher and time lapse to a future purchase is shorter. Additionally, high group salience is found to influence the relationship between social norm appeal and inspiration. This suggests the important effect of inspiration when sustainable appeals are to be made. To the best of the researcher's knowledge, this is the first study to provide empirical evidence demonstrating the indirect influence of inspiration on sustainable purchase decisions. The findings provide implications for social marketers wishing to promote sustainable consumption. Inspiration could be leveraged in communication campaigns in order to increase consumer's willingness to consume responsibly in the future.

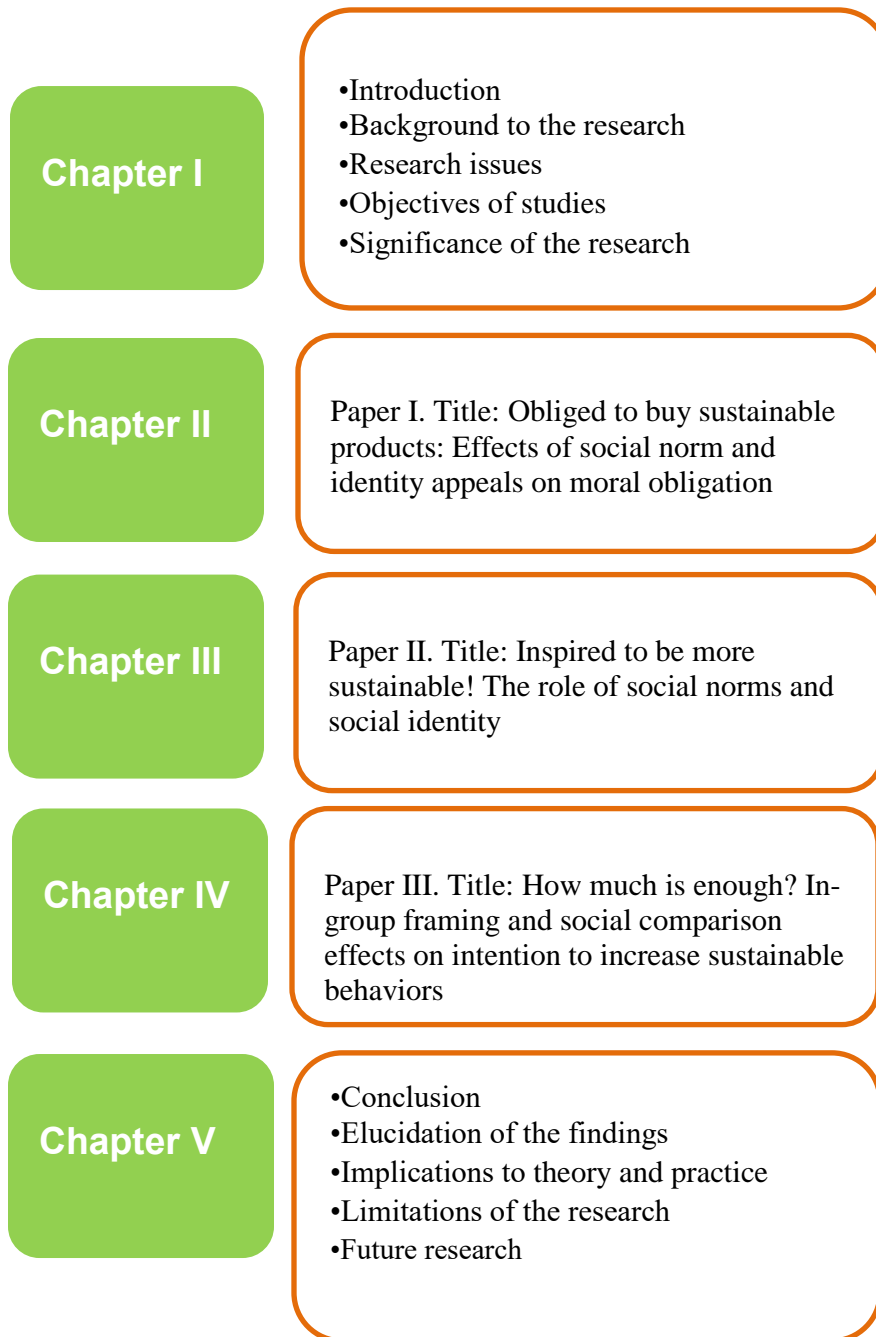
The third paper aimed at extending the identification of important mediators and moderators of normative message appeals by examining the role of group image concern as a mediator and social comparison as a moderator. The findings did not confirm a significant mediating effect of group image concern between in-group message framing and intention to increase number of sustainable actions. Upward social comparison mitigated the negative effect of negatively framed in-group message by indicating that this mechanism could be employed to motivate consumers to behave more sustainably. To the best of the researcher's knowledge, this is the first study to provide empirical

evidence on effects of in-group framing on sustainable consumption contingent on direction of social comparison. Descriptive social norm appeals with a comparison nudge can be targeted in interventions to increase consumer's willingness to consume responsibly in the future

1.5 STRUCTURE OF THESIS

This thesis consists of five chapters. Figure 2 summarises the flow of thesis chapters in a diagrammatic form, and a brief description outlines the content.

Figure 2. Framework of thesis.



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CHAPTER 2. STUDY 1: OBLIGED TO BUY SUSTAINABLE PRODUCTS: EFFECTS OF SOCIAL NORMS AND IDENTITY APPEALS ON MORAL OBLIGATION

Chapter 2 features the first study in this thesis – *Obligated to buy sustainable products: Effects of social norm and identity appeals on moral obligation*. With uncertainties about our future and challenges that sustainable products have in the marketplace, the aim of this study is to better understand the mechanism that underlies the decision-making about purchasing sustainable products. The research methodology in this chapter involves the use of randomised online experiments.

At the time of the submission of this thesis, Study 1 has received a R&R status from the *Australasian Marketing Journal*. This chapter is presented in a journal article format tailored to the journal's specifications. The contribution ratio of all authors of this paper is highlighted on the following page, before the abstract of the main paper.

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Overall percentage (%)	60%		
Certification:	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature, and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper.		
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By signing the Statement of Authorship, each author certifies that:

- i. the candidate's stated contribution to the publication is accurate (as detailed above);
- ii. permission is granted for the candidate to include the publication in the thesis; and
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STUDY 1: OBLIGED TO BUY SUSTAINABLE PRODUCTS: EFFECTS OF SOCIAL NORMS AND IDENTITY APPEALS ON MORAL OBLIGATION

Abstract

Increasing awareness of the importance of sustainability and encouraging consumers to behave in a sustainable manner such as purchasing sustainable products, remains a challenge for social marketers and behavioural scientists. This study examines the influence of social norm (injunctive, descriptive, and combined) and product functional appeals (description of environmental benefits) on moral obligation to purchase sustainable products. The moderating role of group identity and environmental identity is also taken into consideration. Drawing on normative conduct theory and social identity theory, this study uses an experimental design to uncover the interaction between group identity and environmental identity. Across all appeals, combined norms (descriptive and injunctive) showed the greatest moral obligation; this effect was significantly stronger among consumers with high group identity and environmental identity than among those with low group identity but high environmental identity. High group and environmental identity appear crucial for consumers to form a moral obligation to purchase sustainable products. Thus, marketing communication emphasised on what others do, and what they ought to do (combined norms), can be used effectively to morally oblige consumers to purchase a sustainable product.

Keywords: injunctive norms, descriptive norms, combined norms, group identity, environmental identity, moral obligation

Introduction

Reducing environmental impact and decreasing waste are global challenges for sustainability (Borg, Curtis and Lindsay, 2020). Increasing awareness of the importance of sustainability and encouraging consumers to behave in a sustainable manner and to purchase sustainable products, are key problems for social marketers and behavioural scientists (Maccioni, Borgianni and Pigosso, 2019; Pinto *et al.*, 2019). Historically, marketers have used several approaches to influence consumer behaviour. The most common approach, which relies on product functional appeal, is information provision through marketing material (Lehner *et al.*, 2015). This approach emphasises on the functional and environmental benefits of sustainable products (Hartmann and Apaolaza-Ibáñez, 2009) and assumes that consumers will choose products that provide maximum environmental benefits and have minimal environmental costs (Lehner *et al.*, 2015). However, research into social and cognitive psychology indicates that consumers are not bound by rationality and often display behavioural biases when making a purchase (Lehner *et al.*, 2015). Moreover, they may be reluctant to compromise product quality over environmental benefits (Lehner *et al.*, 2015). This means that product functional appeals may not be the most effective way to promote sustainable products (Lehner *et al.*, 2015).

Another popular approach to influence sustainable consumption focuses on social norm appeals (Smith and Louis, 2009; White and Simpson, 2013; Masson and Fritsche, 2014). This approach assumes that consumers are influenced by the behaviours of their reference group and has been found to positively impact sustainable behaviour (White and Simpson, 2013). While extant research has provided insights into how social norm appeals may influence sustainable consumption, it only investigated a limited number of appeals and reported inconsistent findings, in the sustainable consumption domain and calls for further examination.

Recent research has started to look at the impact of moral obligation on sustainable consumption as an intrinsic motivational state (Gatersleben *et al.*, 2017), and suggests it exerts a greater influence on behaviour than experimentally induced emotions or feelings (van der Werff *et al.*, 2013). Moral obligation reflects one's sense of responsibility to follow a norm or behaviour which often leads to positive behavioural outcomes (e.g., energy saving, green energy consumption). Thus heightened moral obligation to engage in sustainable behaviours represents a cost-effective route to increase behavioural uptake (van der Werff *et al.*, 2013). Most studies focused on an existing sense of moral obligation (Chen, 2016; van der Werff *et al.*, 2013) rather than its antecedents. Yet a better understanding what drives a sense of moral obligation is important in marketers and policy makers' communication with consumers. In this study we aim to fill this gap by investigating two types of commonly used appeals in marketing of sustainable products, social norm appeals (descriptive, injunctive and combined) vs functional appeals on moral obligation to purchase sustainable products in a single study.

In addition, we consider the boundary condition of individual's identity in the effects of these appeals on moral obligation. In general, individuals have multiple identities (such as group identity, environmental identity etc.) (Gatersleben *et al.*, 2017) whose salience depends on the context and cues presented (Oyserman, 2009). These multiple identities (environmental identity and group identity) interact when consumers are exposed to social marketing messages with various appeals (such as functional and social norm appeals). This study posits that how consumers respond to social norm appeals or functional product appeals depends on their identity salience (group identity and environmental identity).

In summary, this research will compare the effects of two appeals - social norm vs functional— on moral obligation to purchase a sustainable product, while taking the salience of consumers' group and environmental identities into consideration. By revealing interactions between key determinants of sustainable consumption, this study makes three important contributions to theory and practice. First, it answers the call for more detailed research on predictors of sustainable behaviour (White and Simpson, 2013; Liang, Kerk and Henderson, 2018) by incorporating all three types of social norm

appeals, in addition to functional appeals. Second, by merging social norms theory (Cialdini, Kallgren and Reno, 1991) and rational choice theory (Hansen and Schrader, 1997), this study identifies how social norm appeals, when directly compared to functional product appeals, can prompt greater moral obligation to purchase sustainable products. Third, by integrating social norms (Cialdini *et al.*, 1991) and social identity theory (Tajfel and Turner, 1986), and by providing a novel process of normative influence, this study examines how salience (low vs high) of group and environmental identity affects moral obligation to purchase sustainable products. Identifying the influences of group and environmental identity should provide a more realistic, nuanced explanation of the underlying process, with novel insights into how communication can better promote sustainable products.

Theoretical background and hypotheses

Normative conduct theory and social norms

Because individuals are social by nature and live in societies, they are susceptible to social influences (Gockeritz *et al.*, 2010). People develop cognitive structures (knowledge about expected behaviours and norms) through ongoing socialisation processes -- observations of others and personal experiences -- and may use these behavioural norms to guide their own behaviours (Goldsmith and Goldsmith, 2011). In social psychology, modifying one's behaviour to match it to the behaviours of others is seen as an important adaptive element (Gockeritz *et al.*, 2010). According to normative conduct theory, three types of social norms regulate an individual's behaviour (Cialdini *et al.*, 1991). Descriptive norms reflect what individuals think other people are doing or consider to be a prevalent behavioural pattern (Jacobson, Mortensen and Cialdini, 2011). "Ought to" injunctive norms reflect what individuals believe others think one should do (White and Simpson, 2013). These social norms typically reflect an individual's perception of what others approve or disapprove (Cialdini *et al.*, 2006). Combined

norms contain elements of both norms: descriptive (of behavioural patterns) and injunctive (the “ought to” component) (Schultz, 2007).

Table 1 provides a summary of studies on both social norm appeals (descriptive, injunctive, and combined) and functional appeals in the sustainable consumption domain. Social norm appeals are often compared with other appeals-- such as functional and emotional appeals-- predominantly used in prosocial contexts to persuade consumers to make donations, purchase a product, or change brand attitudes (Searles, 2010; Hartmann *et al.*, 2005; Hartmann and Apaolaza-Ibáñez, 2009).

Previous research has consistently shown that, for a social norm to be effective in regulating one’s behaviour, it must be salient: either the norm needs to be presented to consumers (who is doing it, when and why), or consumers need to clearly perceive an existing social norm (Cialdini *et al.*, 2006; Kallgren *et al.*, 2000). However, there are variations in the motivational mechanism through which each type of social norm influences individuals. For example, descriptive norms convey information about behaviours that receivers might copy if they appear to represent the most adaptive behavioural pattern. Descriptive norms may represent a typical behaviour in a group (Cialdini *et al.*, 1991; Smith *et al.*, 2012; Thøgersen, 2006), thus offering a standard for modelling one’s own behaviour (Clapp and McDonell, 2000). Descriptive norms mostly inform thus helping consumers navigate a complex social environment. For example, others help determine a “correct” course of action when someone seeking Baggage Claim in an unfamiliar airport follows other passengers (Deutsch and Gerard, 1955; Gockeritz *et al.*, 2010). Descriptive norms also imply that individuals accept behavioural information as a true reflection of reality (Deutsch and Gerard, 1955), and that individuals do not like to deviate from prevalent behaviours (Schultz, 2007). However, descriptive appeals about energy consumption have had unintended consequences (Shultz, 1999; Shultz, 2007) as when households with lower energy use increased their usage after learning about the energy consumption of neighbours (Nolan *et al.*, 2008). This effect disappeared only when injunctive norms were also added to the appeal (White and Simpson, 2013).

Injunctive norms influence individual behaviour through a different motivational mechanism of rewards (compliance with approved behaviours) or punishment (non-

engagement in approved behaviours) (Smith *et al.*, 2012). Such social norms have a normative function: social influence occurs because individuals want to conform to group expectations (Deutsch and Gerard, 1955). In anti-littering campaigns, purely injunctive norm appeals are more motivational than purely descriptive norm appeals (Masson and Fritsche, 2014) (see Table 1).

Appeals that combined descriptive and injunctive norms were also found to enhance motivation (Göckeritz *et al.*, 2010; White and Simpson, 2013). Combined norms stimulate behaviours by highlighting that the behaviour is commonly practiced, and approved by others (Göckeritz *et al.*, 2010). Combined norms are similarly significant on conservation behaviour (Göckeritz *et al.*, 2010) and grass-cycling (White and Simpson, 2013).

INSERT TABLE 1 ABOUT HERE

Table 1: Overview of past studies on social norms and sustainable behaviours

Author(s) and year of publication	Type of social norms	Method	Context	Key findings
Cialdini <i>et al.</i> , (1990)	Descriptive, injunctive	Experiment	Littering	Individuals littered more in a littered environment than in a clean environment. Individuals littered less after an exposure to anti-littering injunctive norms
Reno <i>et al.</i> , (1993)	Descriptive, injunctive	Experiment	Littering	Injunctive norms discouraged littering
Schultz (1999); Schultz (2007)	Descriptive, combined norms	Experiment	Recycling, energy conservation	Descriptive norms increased recycling and energy conservation among those who were underperforming, but produced an opposite effect amongst those who were over-performing, which was mitigated by combined norms
Cialdini <i>et al.</i> , (2006)	Descriptive, Injunctive	Survey	Stealing of petrified wood	Injunctive norms discouraged stealing of petrified wood from natural parks
Hartmann <i>et al.</i> , (2005)	Functional vs emotional appeals	Experiment	Attitudes and perceptions of green products	Results indicate an overall positive influence of green brand claim on brand attitude. Findings suggest that the highest perceptual effects were achieved through a green appeal that combined functional attributes with emotional benefits
Nolan <i>et al.</i> , (2008)	Descriptive	Survey	Energy conservation	Perceptions of descriptive norms were more strongly related to energy conservation than beliefs about environmental protection or financial incentives
Goldstein <i>et al.</i> , (2008)	Descriptive, environmental appeals	Experiment	Conservation behaviour	Descriptive norms were more influential than traditionally used environmental appeals
Hartmann and Apaolaza-Ibáñez, (2009)	Environmental vs informational appeals vs affective appeal	Experiment	Attitudes and perceptions of car brands	Environmental claims had an overall positive effect on attitudes associated with the brand. Affective claim that used natural imagery have had the strongest effect on the brand attitude and perception
Gockeritz <i>et al.</i> , (2010)	Combined norms	Survey	Conservation behaviour	Combined norms were positively associated with conservation behaviour

Searles, (2010)	Emotional appeal vs functional appeal	Survey	Environmental attitudes	Emotional appeals affect significantly the direction of environmental attitudes and concern levels
Grimmer and Woolley, (2012)	Functional vs personal	Survey	Purchase intentions toward a green product	Environmental benefit of the product (functional appeal) showed greater efficacy in affecting consumers' intentions to buy a green product
Masson and Fritsche (2014)	Descriptive, injunctive	Experiment	Organic food	Injunctive norms performed better than descriptive in motivating consumers to purchase organic food
White and Simpson (2013)	Descriptive, combined norms, benefits appeal	Experiment	Composting, grass cycling	Combined norms were more effective in stimulating composting and grass cycling when messages appealed to a collective self ("us"). Benefit appeals with collective self ("us") and combined with individual self ("you") were less effective in influencing attitudes towards grass cycling and behaviours

Social norms and moral obligation

Past concepts of social norm appeals assumed a direct effect on behaviours, with no underlying mechanism that leads to normative influence. The current study proposes that social norms may influence consumers more than functional appeals by creating greater moral obligation to engage in promoted behaviours. Moral obligation is an intrinsic motivational state, reflecting one's sense of responsibility to follow a particular norm or rule, or to engage in specific behaviours (van der Werff *et al.*, 2013). Since moral obligation (once developed) is an intrinsic motivational state that reflects one's sense of responsibility, it acts as a precursor to behavioural engagement (van der Werff *et al.*, 2013), highlighting its relevance to sustainability research. Some scholars have suggested that moral obligation, as a motivational state, could have a higher impact on behaviour than emotions (van der Werff *et al.*, 2013).

Moreover, the strength of moral obligations may be contingent on the type of social norm appeal. Descriptive norms describe behavioural standards for consumers about what is typical or normal (Cialdini *et al.*, 1991). Yet, by not containing an explicit call for action,

these might be less effective. Consumers are relatively poor processors of information (Tversky and Kahneman, 1973; Monga and Bagchi, 2012) and may need a behavioural “push” suggesting that a message with injunctive norms (a call for an action) better elicits a perceived moral obligation to purchase sustainable products. Furthermore, though descriptive norms provide information about social behaviours, they do not convey explicit pressure to conform to a norm, a requirement for social norms (Deutsch and Gerard, 1955). Injunctive norms contain such pressure, but may seem to infringe on one’s freedom to choose (Shultz, 2007).

In contrast, combined norms may create a greater sense of moral obligation to purchase sustainable products. These norms contain a call for action and explicit pressure to conform to a social norm. Most importantly, they may mitigate perceived pressure by providing supportive evidence that other individuals are also buying sustainable products (e.g., descriptive norms). This effect is particularly relevant for new sustainable products that lack consumer awareness. Hence, combined norms are likely to overcome the negative aspects of injunctive norms when used alone (Schultz, 2007), and be more motivational than descriptive norms. Given the uncertainty around new sustainable products - such as quality and performance - combined norms are expected to be superior in prompting greater moral obligation to purchase sustainable products as they contain quality assurance (other consumers are buying it). To foster moral obligation, descriptive norms and injunctive norms together are expected to be more effective than functional product appeals, even when functional appeals suggest that sustainable products can be purchased by a group. This could be due to the fact that functional appeals do not contain socially binding information, and lack the quality assurance of descriptive norms, injunctive norms, or combined norms (Figure 1). Hence, we hypothesises that:

H1: Combined (descriptive and injunctive) norm appeals will produce greater moral obligation to purchase new sustainable products than descriptive norms, injunctive norms, or functional product appeals when these are used alone.

Environmental and group identities

According to identity theory, consumers have multiple identities – e.g., one could identify as an Australian, a parent, and a blood donor (Arnett, German and Hunt, 2003; Gatersleben *et al.*, 2019). Identity is defined as a self-concept, including personal, social and other self-perceptions (identities) (Arnett *et al.*, 2003; Oyserman, 2009). Although social psychology has documented the influence of group identity (Blanton *et al.* 2008; Masson *et al.*, 2016), marketing research rarely analyses this factor in sustainable consumption research. Similarly, a strategy of strengthening environmental identity is recommended to promote pro-environmental actions (van der Werff *et al.*, 2013).

Multiple identities can operate in tandem because self-identifications are situation-specific and become activated based on accessible contextual cues (Oyserman, 2009). For example, a blood donation message appealing to a sense of patriotism could activate both national identity and donor identity. Self-identification may also include not only how one relates to a social group (Mackie, Silver and Smith, 2008), but also to the context an individual operates in, e.g., the environment (Whitmarsh and O’Neil, 2011). According to identity theory, situationally-cued identities can influence subsequent cognitive shortcuts and behavioural responses by prompting individuals to take actions that are not necessarily beneficial to them, or would not be performed otherwise (Oyserman, 2009). We argue that the salience of identities impacts the effectiveness of social norm appeals in eliciting moral obligation to purchase sustainable products.

Group identity and social norms

Individuals categorise themselves into some groups and out of others (Tajfel and Turner, 1986). This categorisation represents an essential part of identity development and the formation of a sense of belonging (Mackie *et al.*, 2008; Markus, 1977). Individuals also tend to differentiate themselves from others through specific behaviours or consumption practices (Bem, 1967; Berger and Heath, 2007). Not all group memberships are equally salient, since individuals may experience different degrees of strength of group self-identification depending on the perceived group importance (Jetten, Spears and Manstead, 1997), which affects perceived psychological distance of oneself from social

groups (Masson and Fritsche, 2014). This perceived distance typically increases from in-group members to out-group members (Trope & Liberman, 2003) and has implications for how individuals interact with others and whether they choose to engage or abstain from behaviours (Masson and Fritsche, 2014). For instance, individuals are well-known to show bias towards fellow in-group members, displaying higher intentions to help insiders over outsiders (Pinto *et al.*, 2019) or greater preferences for domestic as opposed to imported produce (Gineikiene, Schlegelmilch and Auruskeviciene, 2017).

Past social psychology research tends to support the proposition that, if group membership is psychologically important to individuals' self-identification, behavioural outcomes should be contingent on the salience of experienced group identity (Terry and Hogg, 1996). The underlying assumption behind highly-salient group identity is that individuals want to behave consistently with group norms because this facilitates meeting interpersonal goals that are consistent with one's self-perception (e.g., being an in-group member) (Smith and Louis, 2009). Generally, it is believed that the higher the salience of a group for oneself, the more the person will strive to fit in by behaving according to prescribed or expected norms (Oyserman and Fryberg, 2006). Following this logic, willingness to conform to group norms should be greater amongst those who identify more strongly with the group (i.e., high group identity), pointing to an interaction between the social norm appeal and one's group identity (Jetten *et al.*, 1997). Thus, previous studies indicate that high group identification can enhance the effects of social norms (Jetten *et al.* 1997; McAuliffe *et al.*, 2003), strengthening moral obligation. It follows that, building on normative conduct theory (Cialdini *et al.*, 1991) and identity theory (Arnett *et al.*, 2003; Gatersleben *et al.*, 2019), this study posits that the salience of group identity (high vs low group identity) will moderate the effects of social norms (descriptive, injunctive and combined) on moral obligation, though via motivational mechanisms that are different for high and low group identifiers.

Since salient identities exhibit a motivational pull towards identity-congruent actions and cognitive processing (Oyserman, 2009), descriptive norms should influence moral obligation among those who exhibit highly salient group identity; however, these should be less effective than injunctive or combined norms as they are less prescriptive.

Injunctive norms should be as effective as combined norms among high group identifiers, though this effect will occur via different motivational mechanisms. High group identity typically has positive biasing effects, whereas low group identity should produce negative effects (Smith and Loius, 2009). Hence, when individuals are exposed to injunctive norms which are likely to threaten individual autonomy, high group identity should lessen the potentially negative effects of injunctive norms (Schultz, 2007), still leading to high moral obligation. In this case, behaving consistently with one's identity group should not be affected by the use of prescriptive language. Individuals may tolerate "pushy" language more when group identity is high. Alternatively, those who identify strongly with a group may also consider such pushy language which calls for action more motivational, because assertive language tends to be downplayed when one identifies strongly with an issue (Kronrod, Grinstein and Wathieu, 2012).

For consumers who exhibit low group identity, a message with descriptive norms will be viewed as a simple depiction of behaviours that others are doing, producing low moral obligation to purchase sustainable products. The moderating effect of group identity will become especially pronounced in the case of injunctive norms, which will be perceived less favourably due to their prescriptive nature and higher likelihood to infringe one's autonomy (Schultz, 2007). Likewise, functional product appeals are not likely to generate high levels of moral obligation if the group identity is low. Hence, we hypothesise that:

H2a: Consumers with high group identity will report greater moral obligation to purchase new sustainable products in combined (descriptive and injunctive) and injunctive norm appeals than in descriptive norms or product functional appeals.

H2b: Consumers with low group identity will report lower moral obligation to purchase new sustainable products in any condition.

Environmental and group identity congruence

Group identity alone may not explain variations in moral obligation, as sustainable consumption is intrinsically linked to the environment, hence environmental identity. Therefore, the salience of environmental identity may also play a part. Environmental identity is the extent to which one sees oneself as a type of person that cares and acts in an environmentally-friendly manner (van der Werff *et al.*, 2013). Recent research has shown that this type of identity is strongly associated with green shopping and water usage (Whitmarsch and O'Neill, 2010), sustainable product preferences (Carfora *et al.*, 2019; Michaelidou and Hassan, 2008; van der Werff *et al.*, 2013), intention to reduce meat consumption (van der Werff, Stein and Kaiser, 2014), intention to adopt electric cars (Barbarossa *et al.*, 2015), and greater purchases of eco-friendly tissues (Barbarossa and de Pelsmacker, 2016). When consumers are exposed to sustainable product messages, environmental identity becomes activated in line with Oyserman's (2009) identity activation prediction.

The identity activation theory (Oyserman, 2009) suggests that when identities are salient, they are highly important and individuals tend to align their behaviours with the activated identities (Terry and Hogg, 1996; Oyserman, 2009; Masson and Fritsche, 2014). There are four possible combinations of environmental identity (e_i) and group identity (g_i): $high_{e_i}-high_{g_i}$, $low_{e_i}-high_{g_i}$, $high_{e_i}-low_{g_i}$, $low_{g_i}-low_{e_i}$. When both environmental identity and group identity are high ($high_{e_i}-high_{g_i}$), any appeal (e.g. functional product appeal and any social norm appeals) will produce greater moral obligation because these messages are consistent with high regard for the environment and are aligned with their high identification with the social group. This combination should lead to the highest moral obligation compared to all other groups.

Similarly, individuals who have low group identity and low environmental identity are expected to report significantly lower moral obligation compared to all other groups ($high_{e_i}-high_{g_i}$, $low_{e_i}-high_{g_i}$, $high_{e_i}-low_{g_i}$), because overcompensation through another identity is unlikely to take place—i.e., no identities are salient). This group may present

the greatest challenge to developing moral obligation due to its low salience on both identities. Hence it is hypothesised that:

H3a: Consumers with high (low) environmental identity and high (low) group identity will report significantly more (significantly less) moral obligation to purchase new sustainable products across all appeals compared to other groups.

A low salient identity has less importance for consumers (Oyserman, 2009; Terry and Hogg, 1996) and is less effective in creating moral obligation. However, this study posits more complex outcomes in moral obligation when identities are not consistently high or low. In particular, when environmental identity is low, but group identity is high (low_{ei} - $high_{gi}$), and the group supports purchases of sustainable products, less salient environmental identity may become overcompensated by the more salient group identity. In this case, not acting in the interests of the group, should produce an intra-personal conflict because behaving consistently with group norms facilitates meeting interpersonal goals (Smith and Louis, 2009; Mackie *et al.*, 2008). These consumers would experience a moral obligation to purchase new sustainable products and act for the group rather than the environment. Further, in the low_{ei} - $high_{gi}$ condition, combined norms and injunctive norms create greater moral obligation than descriptive norms appeal and functional appeal. This is presumably due to combined norms containing a call for action and reassurance that others are engaged in such behaviours. The assertive nature of injunctive norms is expected to be downplayed or tolerated (Kronrod *et al.*, 2012) when one identifies with the group. In contrast, functional product appeal is anchored towards the environment, not the social group. Similarly, descriptive norms may not generate high levels of moral obligation because, instead of creating a sense of urgency to act for the group, they simply describe behaviours. This motivational mechanism may also occur among consumers who feel psychologically closer to people rather than to nature (Trope and Liberman, 2010), and who may experience larger psychological distance towards nature when environmental identity is low. Lower psychological distance from highly-salient group identity may compensate for the lack of concern for the environment when

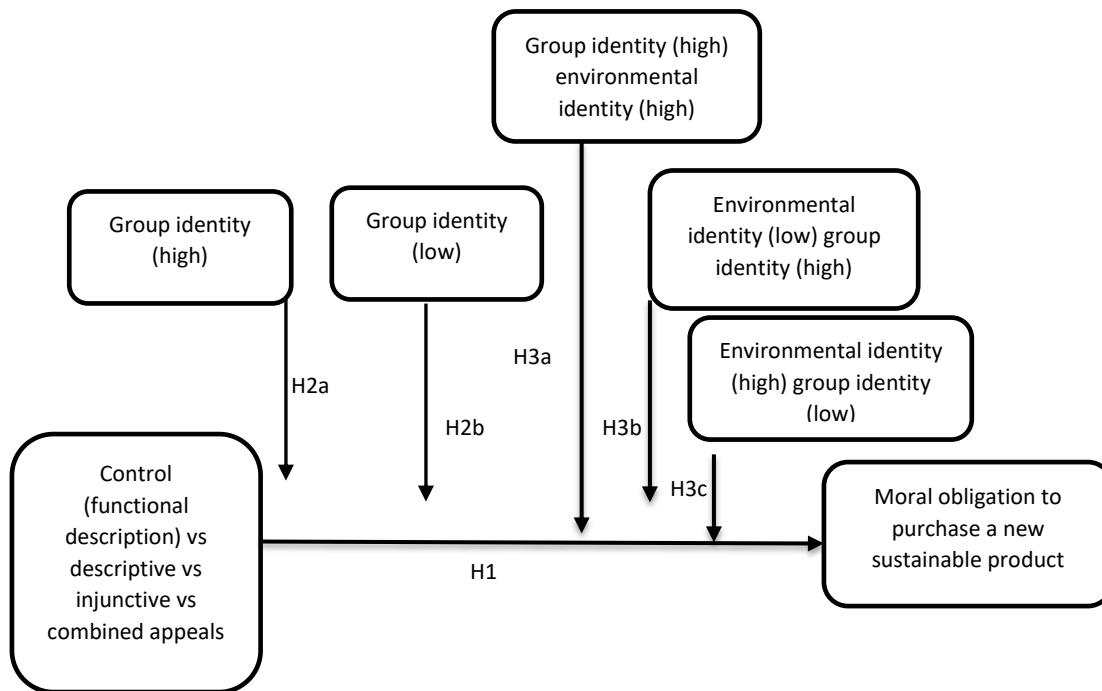
a social push is present (e.g., combined norms and injunctive norms). Thus, it is hypothesised that:

H3b: Consumers with low environmental identity and high group identity will report greater moral obligation to purchase new sustainable products in the combined norms and injunctive norm appeals compared to functional product appeal and descriptive norms appeal.

When environmental identity is more salient, but group identification is low (high_{ei}-low_{gi}), any appeal that emphasises environmental benefits of a product, descriptive norms, and combined norms should produce higher moral obligation. For this group, descriptive norms state the actions of members of a dissociative group but would not create strong moral obligation because descriptions tend to be less motivational. Combined norms (demonstrating that others are also engaged in this behaviour) are expected to tap into a high regard for nature, downplaying assertive language of the dissociative social group (injunctive norms). This group may, overall, be driven more by environmental identity than by group identity. Injunctive norms may be perceived less favourably, creating the lowest levels of moral obligation, since the “pushy” message originates from a dissociative social group. Previous research has demonstrated that assertive ad language is ineffective due to reactance among committed consumers (Zemack-Rugar, Moore, and Fitzsimons, 2017). Hence it is hypothesised that:

H3c: Consumers with high environmental identity and low group identity will report greater moral obligation to purchase new sustainable products in the combined norms appeal compared to functional product appeal, descriptive and injunctive norms appeal.

Figure 1. Conceptual framework



Method and procedure

This study used a four-factorial design: functional product appeal (control group) vs social norm appeals (i.e., descriptive norms vs injunctive norms vs combined norms between-subjects experimental design (Appendix 1)). Participants were randomly allocated to one of the four experimental conditions and evaluated an advertisement for a new sustainable product. In all conditions, consumers viewed a flyer featuring a product unavailable on a market at that time. This pre-empted prior purchases or loyalty bias. Social norms were manipulated using the same procedure as prior research (White and Simpson, 2013). Descriptive norms appeals were manipulated with messages that 70 percent of South Australians were buying a new sustainable product. Injunctive norms appeal stated that respondents should buy this new sustainable product to benefit their

community. The combined norms manipulation included both descriptive and injunctive norms. The control group was shown a functional description of a new sustainable product which stated that it could be purchased by South Australians, the study's target group (Appendix 1). For copyright purposes, images of the product are available upon request. The authors' institution granted ethics approval to carry out this research.

Measures

Group identity was measured using a 3-item scale developed by Leach *et al.*, (2008) ("I often think about the fact that I am South Australian," "The fact that I am South Australian is an important part of my identity," and "Being South Australian is an important part of how I see myself"). It was measured from 1 ("strongly disagree") to 7 ("strongly agree") and exhibited satisfactory reliability in each experimental condition (Cronbach's α : descriptive norms = .943, injunctive norms = .950, combined norms = .971, and control group = .952). Environmental identity was measured using a 4-item scale developed by Whitmarsh and O'Neil (2010). Participants were asked to indicate their degree of agreement on a seven-point Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree") ("I would be embarrassed to be seen as having an environmentally friendly lifestyle," (scoring reversed) "I would not want my family or friends to think of me as someone who is concerned about environmental issues," (scoring reversed), "I absorb environmental knowledge and information," and "I think of myself as an environmentally-friendly consumer"). Environmental identity exhibited satisfactory reliability (Cronbach's α : descriptive norms = .926, injunctive norms = .893, combined norms = .839, and control group = .885).

Participants' moral obligation to purchase a new sustainable product was measured as in Melnyk *et al.* (2013) ("I feel morally obliged to purchase X," and "I would feel guilty if I do not purchase X;" Cronbach's α : descriptive norms = .816, injunctive norms = .705, combined norms = .811, and control group = .886). Moral obligation was measured on a 7-point Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"). Participants also specified their age, gender, educational attainment, and completed manipulation checks adapted from White and Simpson (2013) ("The flyer that you

viewed mentioned only what other South Australians are buying” (descriptive norms manipulation check) and “The flyer that you viewed mentioned what South Australians want you to buy” (injunctive norms manipulation check) measured from 1 (“strongly disagree”) to 7 (“strongly agree”). Before the main data analysis, group identity and environmental identity scales were averaged and split on the mid-scale (4.33). Scores from 1 to 4.33 designated “low group identity” and “low environmental identity,” whereas scores from 4.34 to 7 designated “high group identity” and “high environmental identity.”

Participants

The sample consisted of 201 participants (103 females and 98 males) ranging in age from 18 to 76 years. Participants included 58% of high school or university graduates, 35% technical or further education graduates. Characteristics of the sample can be found in Table 2. Participants are representative of the South Australian population in terms of age and gender. Females were slightly over-represented in the injunctive norms condition (Table 2). There was a slight over-representation of older males in the sample (Table 2). There were minor gender differences in descriptive and injunctive conditions (Table 3), but no age differences ($p > .05$).

INSERT TABLE 2 ABOUT HERE

Table 2. Sample characteristics

	Females ^b (n=103)		Males ^b (n=98)		N
	N	%	N	%	
Conditions:					
Functional product appeal (control group)	23	46%	27	54%	50
Descriptive norms	26	52%	24	48%	50
Combined norms	26	52%	24	48%	50

Injunctive norms	28	56%	22	44%	51
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Education:

High school	27	28%	51	50%
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Bachelor's degree	28	29%	21	20%
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TAFE/VET ^a	34	35%	26	25%
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Master's degree	7	7%	5	5%
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Doctorate degree (PhD)	1	1%	-	-
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Age:^c

18-34 years	37	38%	19	18%
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35-49 years	26	27%	25	24%
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50 years and over	34	36%	59	57%
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Notes: ^a TAFE refers to technical and further education, VET refers to vocational educational training qualification.

^b Australian population gender statistics (2016 census): males=49%, females=51%.

^c Australian population gender by age statistics (2016 census): Males: 18-34 years = 32%, 35-49 years = 26%, and 50 years and over = 42%; females: 18-34 years = 31%, 35-49 years = 25%, and 50 years and over = 44%.

INSERT TABLE 3 ABOUT HERE

Table 3. Descriptive statistics

	Group identity	Environmental identity	Moral obligation to purchase
Functional product appeal (control group):			
Females	4.65 (1.57)	4.87 (1.31)	3.67 (1.82)
Males	4.70 (1.81)	4.57 (1.15)	3.54 (1.67)
18-35 years	4.16 (1.80)	4.83 (1.11)	3.24 (1.40)
36-50 years	4.90 (1.74)	4.66 (1.25)	4.43 (1.74)
51 years and over	4.96 (1.47)	4.69 (1.39)	3.34 (1.89)
Descriptive norm:			
Females	4.46 (2.17)	5.21 (1.45)	4.56 (1.45)**
Males	4.65 (1.86)	4.76 (1.37)	3.21 (1.78)**
18-35 years	3.86 (2.22)	4.71 (1.65)	3.75 (1.66)
36-50 years	4.90 (2.05)	4.95 (1.52)	3.14 (1.52)
51 years and over	4.75 (1.89)	5.09 (1.33)	4.06 (2.01)
Combined norm:			
Females	4.56 (1.84)	4.97 (1.10)	5.02 (1.58)
Males	4.56 (2.03)	4.86 (1.23)	4.21 (1.72)
18-35 years	4.44 (2.19)	4.43 (0.89)	4.58 (1.54)
36-50 years	5.04 (1.53)	4.99 (1.38)	5.19 (1.66)
51 years and over	4.53 (2.09)	5.16 (1.08)	4.13 (1.74)
Injunctive norm:			
Females	4.83 (1.60)	4.93 (1.01)	4.39 (1.22)**
Males	4.84 (1.88)	5.07 (1.30)	3.25 (1.71)**

18-35 years	4.92 (1.07)	4.69 (0.83)	4.15 (1.59)
36-50 years	4.62 (1.86)	4.83 (0.60)	3.82 (1.23)
51 years and over	4.93 (1.99)	5.30 (1.51)	3.48 (1.82)

Notes: * $p < .05$, ** $p < .01$, *** $p < .001$.

Manipulation checks

Analysis of variance (ANOVA) on the descriptive norms manipulation check confirmed the main effect of norm appeal ($F(3, 195) = 9.568$ $p < .001$). Posthoc comparison (Howell 1997) showed that those allocated to the descriptive norms manipulation were more likely to agree that the flyer described what South Australians were buying ($M = 5.42$) than did those in the control group ($M = 3.76$, $p < .001$) and injunctive groups ($M = 4.32$, $p < .01$), suggesting the experimental manipulation worked as intended. The posthoc comparison revealed no difference on the descriptive norms manipulation check between the descriptive norms ($M = 5.42$) and the combined norms group ($M = 5.14$, $p > .05$), which was acceptable given that descriptive norms formed part of the combined norms manipulation.

Similarly, the injunctive norms manipulation check showed that those allocated to the injunctive condition viewed the appeal as more injunctive ($M = 6.12$), than those in the control ($M = 5.40$), descriptive ($M = 5.74$), or combined norms conditions ($M = 5.84$, $F(3, 195) = 2.708$, $p < .05$). Although the posthoc comparison showed no differences between the descriptive norms condition and the combined norms condition ($p > .05$), these differences were deemed acceptable.

Results

To test the hypotheses, an analysis of variance (ANOVA) was performed with the direct effect of 4 manipulations (descriptive norms vs injunctive norms vs combined norms vs control, H1), an interaction between manipulations x group identity (low vs high, H2), and a three-way interaction between manipulation x group identity (low vs high) x environmental identity (low vs high, H3). The direct effect of experimental manipulation

on moral obligation to purchase new sustainable product was significant (H1: $F(3, 178) = 4.512, p < .01$). The posthoc comparison showed that as predicted, moral obligation was higher in the combined norms condition ($M = 4.59$) compared to the descriptive ($M = 3.80, p < .05$), injunctive ($M = 3.64, p < .01$) or control groups ($M = 3.51, p < .001$), suggesting an overall superiority of the combined norms manipulation. The functional product appeal was significantly outperformed by the combined norm manipulation ($p < .001$). There were no differences in moral obligation between the manipulations featuring functional product appeal, descriptive norms or injunctive norms appeals ($p > .05$), suggesting that these appeals were equally ineffective in producing high levels of moral obligation to purchase the new sustainable product.

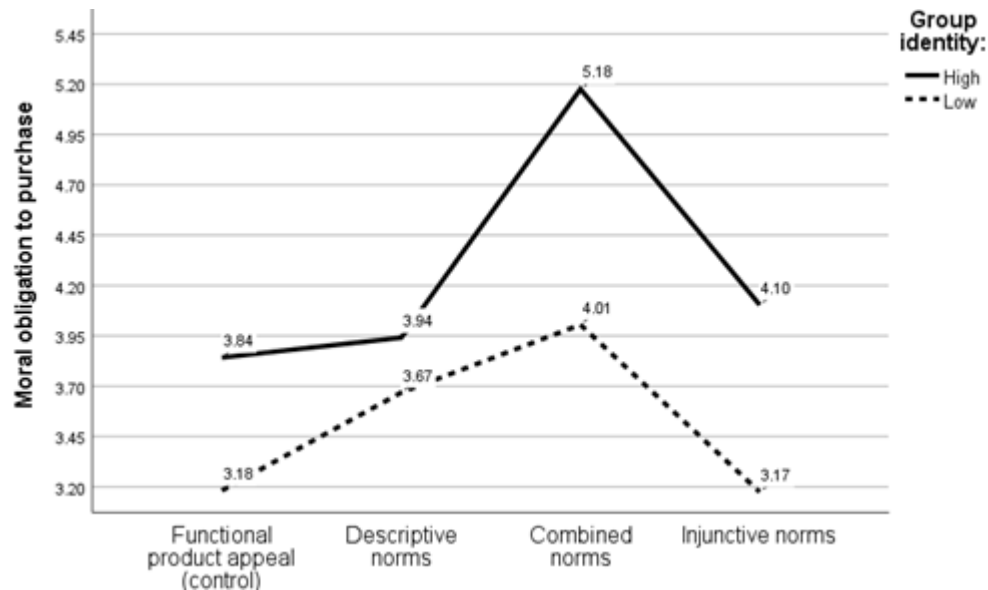
As predicted by H2, when group identity was high participants experienced greater moral obligation to purchase the promoted sustainable product, albeit with some expected variation contingent on appeal manipulation ($F(4, 178) = 3.326, p < .01$). In line with H2a, individuals with high group identity were significantly more motivated by the combined norms ($M_{\text{combined norms} \times \text{high group identity}} = 5.18$) than by the functional product appeal ($M_{\text{control groups} \times \text{high group identity}} = 3.85, p < .01$), descriptive norms ($M_{\text{descriptive norms} \times \text{high group identity}} = 3.94, p < .05$), or injunctive norms ($M_{\text{injunctive norms} \times \text{high group identity}} = 4.10, p < .01$; $F(3, 112) = 3.803, p < .01$, Figure 2). The posthoc test revealed no difference between the control group and descriptive norms ($p > .05$), control group and injunctive norms ($p > .05$), suggesting that these appeals were not effective among individuals who highly identified with the portrayed reference group. Thus, H2a was fully supported.

Although the combined norms appeal produced higher moral obligation among those who reported low group identity, differences in means did not reach statistical significance in this group (H2b: $M_{\text{combined norms} \times \text{low group identity}} = 4.01, M_{\text{control group} \times \text{low group identity}} = 3.18, M_{\text{descriptive norms} \times \text{low group identity}} = 3.67, M_{\text{injunctive norms} \times \text{low group identity}} = 3.17, F(3, 77) = .460, p > .05$, Figure 2). Notably, there were no differences in moral obligation between individuals with high and low group identity in the control group ($M_{\text{high group identity}} = 3.84$ vs $M_{\text{low group identity}} = 3.18, t(48) = -1.276, p > .05$) and descriptive norms ($M_{\text{high group identity}} = 3.94$ vs $M_{\text{low group identity}} = 3.67, t(45) = -1.259, p > .05$), pointing to their lesser effectiveness in eliciting high levels of moral obligation. However, the combined

norms manipulation was more effective in producing moral obligation among those with high group identification compared to low group identification ($M_{\text{high group identity}} = 5.18$ vs $M_{\text{low group identity}} = 4.01$, $t(47) = -3.623$, $p < .001$). The same trend was observed in the injunctive norms condition ($M_{\text{high group identity}} = 4.10$ vs $M_{\text{low group identity}} = 3.17$, $t(46) = -1.957$, $p = .06$). Therefore, H2b was partially supported.

INSERT FIGURE 2 ABOUT HERE

Figure 2. Interaction between group identity and experimental appeals (H2)



As predicted, a three-way interaction between group identity x appeals x environmental identity was significant ($F(8, 178) = 4.861$, $p < .001$). In partial support of H3a, when group identity and environmental identity were both high, individuals responded favourably to the control ($M = 4.88$), descriptive ($M = 5.04$) and combined norms manipulation ($M = 5.51$, $F(3, 68) = 2.897$, $p < .05$, Figure 3a) with no differences in moral obligation between these conditions as per posthoc comparison ($p > .05$). However, this group of participants reported lower moral obligation to purchase when they were exposed to the injunctive norms manipulation ($M = 4.41$) which was significantly lower

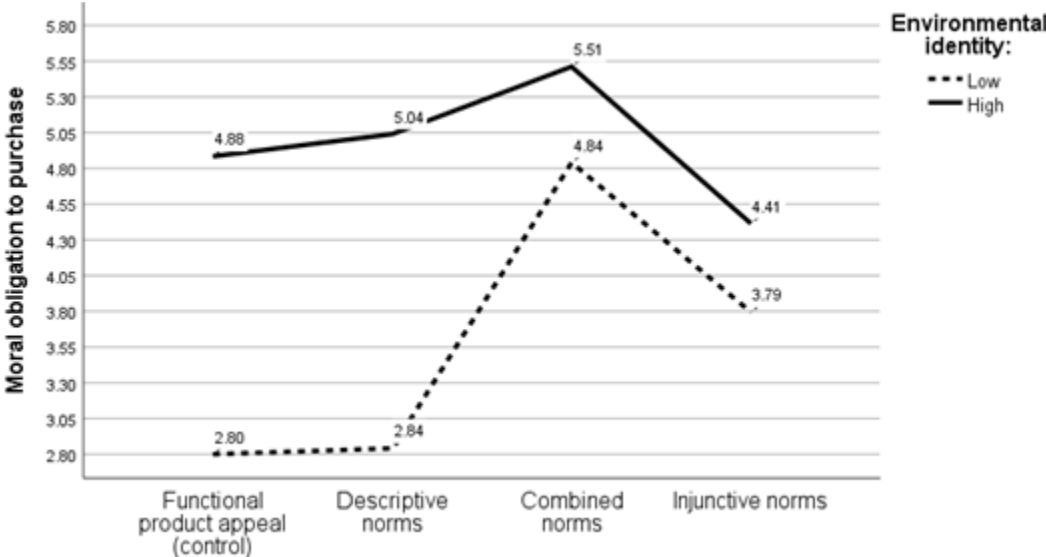
compared to the combined norms appeal ($p < .01$). In line with H3a, when both group identity and environmental identity were low, moral obligation overall was much lower (centred around “3” on a scale from “1” to “7”) and none of the message appeals produced significant boosts in moral obligation ($M_{\text{control group} \times \text{low group identity}} = 3.09$, $M_{\text{descriptive norms} \times \text{low group identity}} = 3.20$, $M_{\text{combined norms} \times \text{low group identity}} = 3.16$ vs $M_{\text{injunctive norms} \times \text{low group identity}} = 2.79$, $F(3, 97) = 1.586$, $p > .05$, Figure 3b).

In line with H3b, when environmental identity was low, but group identity was high, the combined norms message appeal produced greater moral obligation ($M = 4.84$) than the control ($M = 2.80$, $p < .05$) or descriptive norms ($M = 2.84$, $p < .01$) ($F(3, 71) = 3.399$, $p < .05$). There were no differences between combined norms ($M = 4.84$) and injunctive norms ($M = 3.79$, $p > .05$), but moral obligation was notably lower in the injunctive norms group (Figure 3a). In partial support of H3b, there were no differences in moral obligation among the control, descriptive, and injunctive conditions ($p > .05$), pointing to their potential ineffectiveness among those who highly identified with the reference group, but not with the environment.

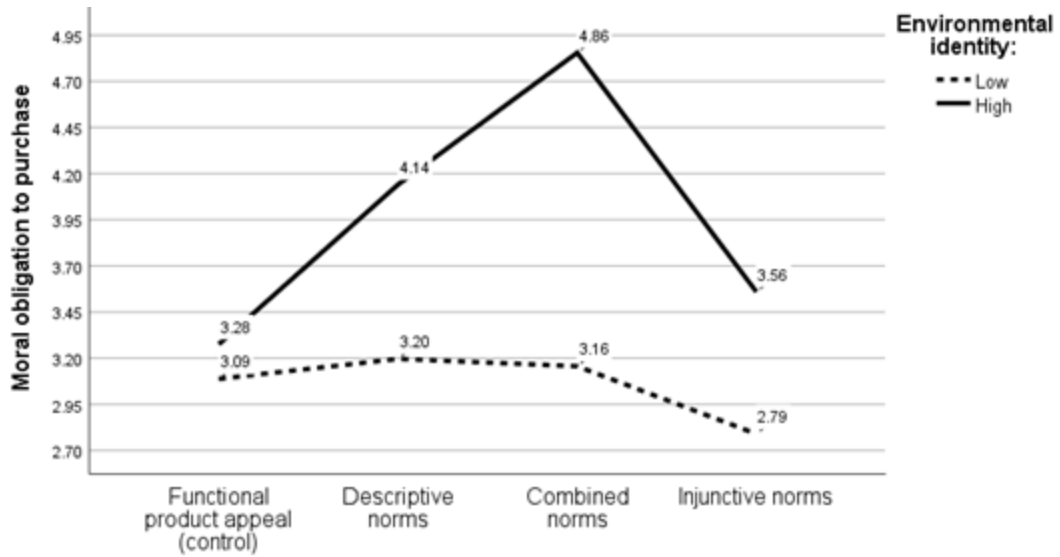
Further analysis showed that when group identity was high, the control treatment was effective only among those who exhibited high environmental identity ($M = 4.88$) than low environmental identity ($M = 2.80$, $t(30) = -3.942$, $p < .001$, Figure 3a). The same trend was observed in the descriptive condition ($M_{\text{high group identity} \times \text{low environmental identity}} = 2.84$ vs $M_{\text{high group identity} \times \text{high environmental identity}} = 5.04$, $t(24) = -3.196$, $p < .001$, Figure 3a). In contrast, differences in moral obligation were marginal in the combined norms condition ($M_{\text{high group identity} \times \text{low environmental identity}} = 5.51$ vs $M_{\text{high group identity} \times \text{high environmental identity}} = 4.84$, $t(27) = -1.589$, $p > .05$) and the injunctive norms condition ($M_{\text{high group identity} \times \text{low environmental identity}} = 4.41$ vs $M_{\text{high group identity} \times \text{high environmental identity}} = 3.79$, $t(27) = -.804$, $p > .05$, Figure 3a), suggesting that these appeals could be more effective in stimulating moral obligation among respondents with varying levels of environmental identity.

INSERT FIGURE 3 ABOUT HERE

Figure 3. Interaction between group identity, experimental appeals, and environmental identity (H3)



A) High group identity



B) Low group identity

In partial support of H3c, participants with high environmental identity and low group identity responded slightly more favourably towards the combined norms ($M = 4.86$), but there was no difference in moral obligation relative to other treatments ($M_{\text{control group}} = 3.28$, $M_{\text{descriptive norms}} = 4.14$, vs $M_{\text{injunctive norms}} = 3.56$, $F(3, 32) = .840$, $p > .05$, Figure 3b).

Further analysis showed that when group identity was low, the control group was less effective both among those with high environmental identity ($M = 3.28$) and low environmental identity ($M = 3.09$, $t(16) = -.253$, $p > .05$, Figure 3b). The same trend was observed in the descriptive norms ($M_{\text{low group identity} \times \text{low environmental identity}} = 3.20$ vs $M_{\text{low group identity} \times \text{high environmental identity}} = 4.14$, $t(22) = -1.484$, $p > .05$) and injunctive norms ($M_{\text{low group identity} \times \text{low environmental identity}} = 2.79$ vs $M_{\text{low group identity} \times \text{high environmental identity}} = 3.56$, $t(17) = -.950$, $p > .05$, Figure 3b), pointing to these appeals' lower effectiveness when group identification was low. In contrast, those who did not identify with the group, but still felt strongly about the environment were still more influenced by the combined norms treatment ($M_{\text{low group identity} \times \text{high environmental identity}} = 4.86$) than those with low environmental

identity ($M_{\text{low group identity} \times \text{low environmental identity}} = 3.16$, $t(18) = -2.215$, $p < .05$, Figure 3b). Age did not exert any effect on moral obligation ($F(2, 187) = .591$, $p > .05$), but there were gender differences in the overall sample with women reporting higher moral obligation ($M = 4.26$) than men ($M = 3.49$, $F(1, 178) = 12.145$, $p < .001$).

Table 4. Summary of Research Findings

Research Hypotheses	Findings
	Supported
H1: Combined (descriptive and injunctive) norm appeals will produce greater moral obligation to purchase new sustainable products than descriptive norms, injunctive norms, or functional product appeals will when they are used alone.	
	Supported
H2a: Consumers with high group identity will report greater moral obligation to purchase new sustainable products in combined (descriptive and injunctive) and injunctive norms appeals than in descriptive norms or product functional appeals.	
	Partially supported
H2b: Consumers with low group identity will report lower moral obligation to purchase new sustainable products in any condition.	
	Partially supported
H3a. Consumers with high (low) environmental identity and high (low) group identity will report significantly greater (significantly lower) moral obligation to purchase new sustainable products across all appeals compared to other groups.	
	Partially supported
H3b. Consumers with low environmental identity and high group identity will report greater moral obligation to purchase new sustainable products in the combined norms and injunctive norms	

appeals compared to functional product appeal and descriptive norms appeal.

Partially supported

H3c. Consumers with high environmental identity and low group identity will report greater moral obligation to purchase new sustainable products in the combined norms appeal compared to functional product appeal, descriptive and injunctive norms appeal.

Discussion

This study represents a pioneering effort to uncover the roles of individual and social level factors on the purchase of sustainable products in Australia and offers two main findings.

First, the results identify the conditions under which social norm appeals are more effective than functional product appeals in prompting greater moral obligation to purchase new sustainable products. Across all appeals, combined norms (descriptive and injunctive) showed greater moral obligation. The results indicate that, in addition to combined norms appeals, injunctive norms appeal also influences consumers' perceived moral obligation to purchase a sustainable product. Overall, the induced normative appeals influence consumers' feeling of moral obligation to buy a product in the future.

Second, this significantly stronger effect of combined social norm appeals more pronounced among consumers with high group identity and low environmental identity than among those with low group identity but high environmental identity. These results indicate that group identity and environmental identity moderate the relationship between social norm appeals and moral obligation. As expected, high group identity increases the effect of combined normative appeals when it is combined with high environmental identity. A combination of high environmental identity and low group identity significantly increased the effectiveness of combined appeals. This study posits that

social norms will be least effective in influencing moral obligation to purchase a sustainable product when consumer's group identity is low, as opposed to when it is high. Social norm appeals should be more effective when group identity is high since behaviour is prescribed to be a norm for the group with which they identify (i.e. South Australians).

Theoretical implications

The current research makes three theoretical contributions. First, it answers the call for more detailed research on predictors of sustainable consumption (White and Simpson, 2013; Liang, Kerk and Henderson, 2018) by incorporating all three types of social norm appeals, in addition to functional appeals. Second, by merging social norms theory (Cialdini, Kallgren and Reno, 1991) and rational choice theory (Hansen and Schrader, 1997), this study identifies how social norm appeals, when directly compared to functional product appeals, can prompt greater moral obligation to purchase sustainable products. Third, this study examined how salience (low vs high) of group and environmental identity affects moral obligation to purchase sustainable products. The current research builds on work that suggests that combined norms are particularly powerful as behavioural directives (Shultz, 2007; Pinto *et al.*, 2019), showing the conditions under which combined norms appeals will be more effective than other appeals, such as higher salience of group identity and environmental identity. In this way, the current research makes a theoretical contribution to extant research by highlighting key novel moderators of normative influence.

Most importantly, this study is the first to provide theoretical and empirical evidence to demonstrate that, and how, group identity and environmental identity interact with each other and impact moral obligation responses to act sustainably. Thus, this study provides a more realistic and nuanced explanation of the underlying information processing that occurs when consumers encounter communication about sustainability.

Additional individual related factors were previously shown to influence sustainable consumption perceptions. However, studies on sustainable marketing have provided few insights into how individual-level factors can moderate the relationship between social norm appeals, functional appeals and moral obligation. This study merges sustainability and identity literatures to explain more effectively the variations in moral obligation contingent not only on the type of appeal (functional product appeal or social norm appeal), but also on the characteristics of individual consumers.

Practical implications

These findings have important practical implications. First, the findings reiterate that, in a consumer with high concern for the environment, their environmental identity will influence purchase behaviour. This confirms the importance for marketing and public relations practitioners, policy institutes and government agencies to disseminate information about environmental degradation and its impact on human life. Importantly, a consumer who has a high environmental identity will not necessarily make sustainable purchases. Functional product appeals appear ineffective in instilling a sense of moral obligation to purchase. For this reason, the results highly recommend a combined approach of descriptive and injunctive norms appeals to ensure effective communication initiatives.

Second, the findings highlight strategies to create engagement with various consumer segments. While not every message worked-- even for consumers who had high group identity and environmental identity-- the message choice needs to be carefully considered, since marketers may not know which proportion of consumers identify with the group, and/or care for the environment. It appears that using product functional information (with an environmental benefit claim), or messages that describe what others do (e.g., descriptive appeal), are not very persuasive for consumers who have little concern for environment. Our findings suggest that a mixed appeal, using claims about what others do and what you are to do as well, may have more impact and appeal to a wider range of consumers, including those whose group and environmental identities are both low.

These findings open up ways to design marketing and advertising campaigns that recognise and utilise knowledge of social norms impact, and identify moderators on sustainable purchase behaviour.

Recommendations that emerge from this study include the increase of the sense of group identity as it has shown to overcompensate when environmental identity is low (but combined appeals need to be used), or the increase of the sense of environmental identity, as it is overcompensated when group identity is low (again, combined norms were more effective in this case).

Conclusion

A conceptual framework of social norms influence was proposed to empirically test the influences of this influence on consumer's moral obligation to purchase a personal care product not available in the Australian market. Group identity with the South Australians and environmental identity were tested as moderators, since both are critically important for sustainability and policy intervention. The main findings of the study show that both moderators are positively related with a sense of moral obligation to buy a new sustainable product. The authors found a significant three-way interaction between social norms, group identity, environmental identity and moral obligation to buy. Marketers can encourage green product consumption with strategies that motivate consumers to feel they belong to a certain group, and that clear actions are expected of them.

The limitations of this study are largely related to the use of a self-report questionnaire and survey panel. For one, online panels typically try to use probability recruitment methods, with a clear risk of at least some sample bias. Similarly, hosting the survey online may have biased the sample towards respondents with access to the internet (Borg and Smith, 2018). To minimise these biases, and to ensure that the sample broadly reflected the target population, sampling quotas were applied. Second, self-report online surveys are subject to a number of limitations such as randomised responding and extreme responding (Paulhus and Vazire, 2007). In addition, technical problems can affect the user experience and the quality of an online survey. Future research could

combine paper-based and online surveys to increase the reliability of the data collection. To address these limitations, where practicable quality appraisal procedures were followed to identify and correct errors—for example, respondents who completed the survey too quickly or answered all Likert-type questions with mid-point responses were excluded. Furthermore, while the evaluation of moral obligation to purchase a sustainable product in the future relies on a self-report measure subject to recall error and social desirability, and thus does not necessarily reflect an individual's true behaviour. Future research which employs alternative measures of behaviours, such as observation, is recommended. Also, the study did not measure participants' sustainable behaviour prior to being exposed to experimental conditions.

Further research is also recommended to explore the role of other relevant reference groups (i.e. media, country) messaging on normative perceptions and on the moderators of sustainable behaviours, such as the perceived benefits of performing such behaviours. This gap was noted by Mead, Rimal, Ferrence, and Cohen (2014) who recommend future research to understand the extent to which exposure from different environmental cues, such as the media, affects different variables in the theory of normative influence.

Further research could also examine other moderators of the influence of social norm appeals on sustainable behaviour, such as a collective/individual construal level. This is an emerging field of inquiry which needs more empirical evidence (White and Simpson, 2013; Masson and Fritsche, 2014). In addition, more examination is needed on the role of various reference groups implied in marketing communication. For example, reference group salience might play a role in determining the strength of appeals using group norms. Consumers might respond more to descriptive appeals that feature highly relevant groups, compared to similar appeals that feature groups perceived as less relevant. In addition, researchers could further examine the processes (including cognitive) underlying the relatively negative responses to injunctive social norm appeals and product functional appeals on the part of those with the collective/individual level of self-activation.

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Appendix A: Experiment Manipulations

Control group: Functional appeal

Help save the planet by using NOHBO

NOHBO is an eco-friendly single use personal care product (single use shampoo) that eliminates the problem of plastic waste by using biodegradable packaging that dissolves in water. No harsh chemicals, free of parabens and sulfates. An average South Australian produces 1.5 tonnes of waste a year, most of which is plastic. South Australian consumers can reduce the amount of plastic going into landfill by buying products like NOHBO.



Descriptive only appeal

South Australians are buying NOHBO for a safer environment

Why South Australians are buying NOHBO? NOHBO is an eco-friendly single use personal care product (single use shampoo) that eliminates the problem of plastic waste by using biodegradable packaging that dissolves in water. No harsh chemicals, free of parabens and sulfates.

An average South Australian produces 1.5 tonnes of waste a year, most of which is plastic. A recent survey indicates that 70% of South Australians have started buying NOHBO in the past year.



Injunctive only appeal

South Australians should buy NOHBO for a safer environment

Why South Australians are buying NOHBO? NOHBO is an eco-friendly single use personal care product (single use shampoo) that eliminates the problem of plastic waste by using biodegradable packaging that dissolves in water. No harsh chemicals, free of parabens and sulfates.

An average South Australian produces 1.5 tonnes of waste a year, most of which is plastic. Buying such a product is something you should do for your community.



Combined appeal

South Australians are buying NOHBO for a safer environment

Why South Australians are buying NOHBO? NOHBO is an eco-friendly single use personal care product (single use shampoo) that eliminates the problem of plastic waste by using biodegradable packaging that dissolves in water. No harsh chemicals, free of parabens and sulfates.

An average South Australian produces 1.5 tonnes of waste a year, most of which is plastic. A recent survey indicates that 70% of South Australians have started buying NOHBO in the past year. They also think that you should join them and buy NOHBO. Buying such a product is something you should do for your community.



CHAPTER 3. STUDY 2: INSPIRED TO BE MORE SUSTAINABLE! THE ROLE OF SOCIAL NORMS AND SOCIAL IDENTITY

Chapter 3 features the second paper in this thesis – *Inspired to be more sustainable! The role of social norms and social identity*. The first paper of the thesis provides the basis for uncovering the roles of individual and social level factors on the moral obligation to purchase sustainable products in Australia. Results identify the conditions under which social norm appeals are more effective than functional product appeals in prompting greater moral obligation to purchase new sustainable products. Across all appeals, combined norms (descriptive and injunctive) showed greater moral obligation. The findings provide a foundation for identifying an appropriate strategy for sustainable marketing wording appeal based on the core mechanisms that influence consumers' perceived moral obligation to purchase a sustainable product.

While paper I reveals key insights into consumer perceptions of the three main types of social norms, paper II further examines underlying cognitive mechanisms based on consumer perceptions of inspiration experienced after being exposed to sustainable marketing appeal. As paper I highlights the importance of group identity in experiencing a feeling of moral obligation as a precursor to an actual behavior, paper II of the thesis concentrates on purchase intention and time lapse to purchase in the same experimental setting.

The second paper in the thesis, *Inspired to be more sustainable! The role of social norms and social identity*, is a quantitative experimental study that extends paper I and examines the role of inspiration as a mediator in the cognitive processing of social norm appeals. Managers may develop particular advertisements where the inspiration is communicated through the appeal wording to persuade consumers to purchase a sustainable product faster. As such, we demonstrate that consumers with greater inspiration possess greater purchase intentions and are likely to purchase a sustainable product sooner than those who are not inspired by the appeal to social norms.

At the time of the submission of this thesis, paper 2 is being prepared for submission to the International Journal of Consumer Studies. Accordingly, this chapter is presented in a journal article format. The contribution ratio of all authors of this paper is highlighted on the following page, before the abstract of the main paper.

Statement of authorship

Statement of Authorship

Title of Paper	Inspired to be more sustainable! The role of social norms and social identity
Publication Status	<input type="checkbox"/> Published <input type="checkbox"/> Accepted for Publication <input type="checkbox"/> Submitted for Publication <input checked="" type="checkbox"/> Unpublished and Unsubmitted work written in <small>manuscript status</small>
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Principal Author

Name of Principal Author (Candidate)	Olga Tarabashkina		
Contribution to the Paper	I conceptualised the research paper, designed and conducted experiments for data collection and analysis, interpreted data and wrote manuscript.		
Overall percentage (%)	70%		
Certification:	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper.		
Signature		Date	21/11/2021

Co-Author Contributions

By signing the Statement of Authorship, each author certifies that:

- i. the candidate's stated contribution to the publication is accurate (as detailed above);
- ii. permission is granted for the candidate to include the publication in the thesis; and
- iii. the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

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Contribution to the Paper	Dr Bora Qesja co-supervised the development of work and assisted in manuscript write-up, manuscript evaluation and revision.		

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STUDY 2: INSPIRED TO BE MORE SUSTAINABLE! THE ROLE OF SOCIAL NORMS AND SOCIAL IDENTITY

Abstract

Despite increasing awareness around sustainable behaviours, encouraging consumers to behave in a sustainable manner and purchase sustainable products represents one of the biggest challenges for marketers and policy makers. This study aims to investigate the effects of inspiration as a motivational state prompted by advertising appeal on consumer sustainable behavioural intentions. It identifies a novel mechanism through which social norm appeals influence consumer reactions such as consumers' level of inspiration. Moreover, the study details a novel process of normative influence depending on group salience (low vs high) on the choice to purchase sustainable products and time to do so. In order to test the conceptual framework, data from a random sample of 240 South Australian consumers was analysed using ANOVA and the Process Hayes. Results indicate that inspiration fully mediates the relationship between social norm appeals and the outcome variables; and combined (descriptive and injunctive) norms produce greater inspiration than other types of appeals. Additionally, group identity moderates the relationship between combined social norm appeals and inspiration with the relationship being stronger when the group identity salience is high. Based on our findings, sustainable behaviour messaging is most effective in influencing purchase intent if it emphasises (a) both injunctive and descriptive norm appeals, (b) appeals to a salient group identity, and (c) makes consumers feel inspired by the source.

Keywords Inspiration, social identity, social norms, sustainability, consumer behaviour

Introduction

Over the last two decades, research into sustainability in social marketing has generated insights on the antecedents and moderating factors of sustainable consumption. Despite these insights and an increasing awareness around sustainable behaviours, encouraging consumers to behave in a sustainable manner and purchase sustainable products represents one of the biggest challenges for social marketers and behavioural scientists (Maccioni, 2018; Pinto *et al.*, 2018).

As it is widely acknowledged that the behavioural changes required to engage in sustainable behaviours may pose a deterrent (van der Werff, Steg and Keiser, 2013), the importance of uncovering intrinsic motivations toward engaging in sustainable consumption has been emphasised in the current literature (Gatersleben *et al.*, 2019). Oleynick *et al.*, (2014) argue that motivational states, as an intrinsic motive, are a precursor for individuals to engage in creative actions. While previous sustainability research has explored intrinsic states by highlighting a range of induced emotional states, i.e. guilt, anger, pride and fear (Phipps *et al.*, 2013; Harth, 2013), the role that motivational states such as inspiration play in the processing of advertising appeals remains unclear. According to Thrash *et al.*, (2003), inspiration represents an intrinsic motivational state when an individual is moved by the goodness, truth, or superiority of a trigger and is, in turn, motivated to transmit or copy those qualities/actions. Inspiration also reflects one's feeling of being inspired by the information to follow a particular norm or behaviour (van der Werff *et al.*, 2013). While inspiration has received some attention in studies of creativity, psychology, and marketing (Thrash *et al.*, 2014), its role as a motivational state in promoting sustainable behaviour is unclear.

Past studies have predominantly looked at inspiration as a trait (Halskov, 2010; Lin, 2007), and no studies have identified antecedents of inspiration as a motivational state. Although past research suggests that strengthening internal motivation to engage in sustainable behaviours represents a cost-effective route to increase behavioural uptake (Phipps *et al.*, 2013), it is not clear if functional and social norm appeals (or which types of these) can serve as antecedents in eliciting inspiration to purchase sustainable products. Furthermore, research on the influence of social norm appeals fails to consider

individual level moderators which could explain variation in individuals' inspiration to comply with social norms. This study aims to fulfil this gap by considering group identity as an individual level moderator in the relationship between social norm appeals and inspiration. Specifically, we argue that group identity may interact with inspiration when consumers are exposed to social marketing messages that feature different social norms to entice sustainable consumption. To summarise, this study aims to explore the effect of social norm appeals on the purchase intentions toward a sustainable product, contingent on an individual's group identity and inspiration. By understating the interaction between these determinants of sustainable consumption, this study makes three important contributions to theory. First, it answers the call for more detailed research on predictors of sustainable consumption (White and Simpson, 2013; Liang *et al.*, 2018), covering all three types of social norms in addition to functional appeals. Second, by integrating social norms (Cialdini *et al.*, 1990) and social identity theory (Tajfel and Turner, 1979), and by identifying the conditions under which normative influence has greater impacts, this study provides evidence of how the salience (low vs high) of group identity affects the motivational state of inspiration. Third, it investigates a novel process of normative influence on purchase behaviour by examining the mediating role of inspiration as a motivational state. Finally, the study provides a realistic and nuanced explanation of the processing of underlying information, providing timely and novel insights about effective social marketing interventions.

Theoretical background and hypotheses

The influence of social norms on sustainable behaviour

As individuals are social by nature and live in societies, they are susceptible to social influences (Gockeritz *et al.*, 2010). In social psychology, modifying one's behaviour to match the behaviours of others is believed to play an important adaptive role (Gockeritz *et al.*, 2010). According to the theory of normative conduct, there are three types of social norms which regulate individual behaviour (Cialdini *et al.*, 1990). Descriptive norms reflect what individuals think other people are doing or consider to be a common or prevalent behavioural pattern (Jacobson, Mortensen and Cialdini, 2011). Injunctive

norms have an “ought to” component and reflect what individuals believe others think one should do (White and Simpson, 2013). This type of social norm typically reflects an individual’s perception of what is approved or disapproved of by others (Norman *et al.*, 2005; Cialdini *et al.*, 2006). Combined norms contain the elements of both descriptive (description of behavioural patterns) and injunctive norms (an “ought to” component) (Schultz *et al.*, 2007).

Table 1 provides a summary of studies comparing social norm appeals (descriptive, injunctive, and combined) with functional and emotional appeals in the sustainable consumption domain. Social norm appeals are often compared with other appeals-- such as functional and emotional appeals-- predominantly used in prosocial contexts to persuade consumers to make donations, purchase a product, or change brand attitudes (Searles, 2010; Hartmann *et al.*, 2005; Hartmann and Apaolaza-Ibáñez, 2009) since these are most commonly used by marketers and policy makers in pro-environmental communication and advertising. Appeals to various combinations of social norms have been investigated in a few studies with overall mixed results. For example, previous research by Cialdini *et al.*, (1990) and Reno *et al.*, (1993) has shown that pure injunctive norm appeals are more motivational compared to pure descriptive norm appeals for consumers to stop littering. Masson and Fritsche (2014) arrived at the same conclusion in the context of organic food consumption (see Table 1). However, another group of studies that used the approach of combining both types of appeals into one (a combined appeal) ascertained that this type is superior to all others in its motivational power. Combined norms proved to have a significant effect on conservation behaviour (Göckeritz *et al.*, 2010) and grass-cycling (White and Simpson, 2013), while descriptive social norm appeals had unintended negative consequences (Shultz, 1999; Shultz, 2007) in the context of energy consumption.

INSERT TABLE 1 ABOUT HERE

Table 1: Summary of past studies on social norms and sustainable behaviours

Author(s)	Type of social norms	Method	Context	Key findings
Cialdini <i>et al.</i> , (1990)	Descriptive, injunctive	Experiment	Littering	Individuals littered more in a littered environment than in a clean environment. Individuals littered less after an exposure to anti-littering injunctive norms
Reno <i>et al.</i> , (1993)	Descriptive, injunctive	Experiment	Littering	Injunctive norms discouraged littering
Schultz (1999); Schultz (2007)	Descriptive, combined norms	Experiment	Recycling, energy conservation	Descriptive norms increased recycling and energy conservation among those who were underperforming, but produced an opposite effect amongst those who were overperforming, which was mitigated by combined norms
Cialdini <i>et al.</i> , (2006)	Descriptive, Injunctive	Survey	Stealing of petrified wood	Injunctive norms discouraged stealing of petrified wood from natural parks
Hartmann <i>et al.</i> , (2005)	Functional vs emotional appeals	Experiment	Attitudes and perceptions of green products	Results indicate an overall positive influence of green brand claim on brand attitude. Findings suggest that the highest perceptual effects were achieved through a green appeal that combined functional attributes with emotional benefits
Nolan <i>et al.</i> , (2008)	Descriptive	Survey	Energy conservation	Perceptions of descriptive norms were more strongly related to energy conservation than beliefs about environmental protection or financial incentives
Goldstein <i>et al.</i> , (2008)	Descriptive, environmental appeals	Experiment	Conservation behaviour	Descriptive norms were more influential than traditionally used environmental appeals
Gockeritz <i>et al.</i> , (2010)	Combined norms	Survey	Conservation behaviour	Combined norms were positively associated with conservation behaviour
Hartmann and Apaolaza-Ibáñez, (2009)	Environmental vs informational appeals vs affective appeal (natural imagery)	Experiment	Attitudes and perceptions of car brands	Environmental claims had an overall positive effect on attitudes associated with the brand. Affective claim that used natural imagery have had the strongest effect on the brand attitude and perception
Searles, (2010)	Emotional appeal vs functional appeal in environmental public service announcement	Survey	Environmental attitudes	Emotional appeals affect significantly the direction of environmental attitudes and concern levels

Inspiration and the context of sustainability

Inspiration is intrinsically related to social influences, i.e. being influenced by one's group identity (Chadborn and Reysen, 2016). Inspiration is a construct that motivates individuals to look outward, thwarting the natural inclination to focus on the self. Furthermore, inspiration has an external focus that challenges individual's assumptions and expectations about what the world is and what it can be, causing one to transcend his/her everyday selves beyond many real or imagined limits (Shiota *et al.*, 2017). Bottger *et al.* (2017) conceptualise inspiration as a construct that can foster new ideas, exploration, customer loyalty, and increased demand. Despite divergence across disciplines, one common theme has emerged in the definition of inspiration as a motivational state in which inspiration is born from a source (e.g. of information, behaviour of others) (Aspelund 2010; Chadborn and Reysen 2016; Thrash and Elliot 2003). Specifically, it does not represent an emotion, but a motivational state that generally prompts an action (Chadborn and Reysen, 2016). In a retail environment, inspiration has been identified as fundamental for increasing customer satisfaction and happiness. For example, a study on European retailing trends found that European consumers show a strong need to be inspired as part of their shopping experience and actively seek inspiration in consumption (Manasseh *et al.*, 2012).

Past research has been carried out in the domain of arts and creativity (An and Youn, 2018), creativity (Halskov, 2010), culture (Lin, 2007), and business and entrepreneurship (Bhansing *et al.*, 2018; Wartiovaara *et al.*, 2019). Most of these studies have focused on creative processes and outcomes (Oleynick *et al.*, 2014) or leadership development (Cavanagh, 2015; Wartiovaara *et al.*, 2019). The construct definition and measurement have been largely dependent on the disciplinary lens through which inspiration was studied (Chadborn and Reysen, 2016).

Cause-related marketing research provides some evidence to suggest that inspiration can lead to a number of positive outcomes for a brand. Inspiration has resulted in greater purchase behaviour in a retail context (Bigne *et al.*, 2017) and greater brand trust and loyalty (Napoli *et al.*, 2014). The view that inspiration should lead to behavioral change stems from the appraisal theory (Folkes, Koletsky, & Graham, 1987; Roseman, 1991;

Roseman, Antoniou, & Jose, 1996). In sustainable consumption, the type of positive consequences caused by sustainable choices can involve moral considerations of personal and social responsibility (Barnett, Cafaro, & Newholm, 2005) so that the mere association with the future purchase could be sufficient to experience inspiration (e.g., Zimmermann, Abrams, Doosje, & Manstead, 2011). Moreover, inspiration is experienced in cases of goal congruence through goal-congruent events (Ellsworth & Smith, 1988; Frijda, 1987; Lazarus, 1991; Roseman, 1991; Soscia, 2007). Additional research in social psychology shows that individuals can feel inspired by being associated with a certain group without the need to be personally causing the achievement of all of its goals (e.g., Boezeman & Ellemers, 2007; Tyler & Blader, 2002; Tyler & Blader, 2003). This suggests that consumers could feel inspired about the purchase of sustainable products even when it occurs unintentionally.

This research argues that purchase intention and time lapse to purchase a sustainable product will be positively influenced by the inspiration one experiences after having read sustainable product advertising with a social norm behavioural appeal. When consumers perceive the behaviour of others they identify with as highly inspirational (namely, the behaviour of most group members already purchasing sustainable products), their purchase intention and time-lapse to intended purchase will be enhanced. On the other hand, if consumers perceive the product features and behaviour of others as not inspirational, their purchase intention will decrease and time lapse to intended purchase will increase. Based upon previous research which has identified that inspiration significantly influences purchase intentions, this research proposes that inspiration from the behaviour of group members one strongly identifies with results in greater purchase intention and lower time lapse to intended purchase of a sustainable product. These dependent variables are proxy for actual behaviour according to the theory of normative conduct (Farrow, Grolleau & Ibanez, 2017). The use of these variables as a proxy is further required as the product advertised in the experimental manipulations is not yet available for purchase in Australia. Hence, actual purchase behaviour could not have been captured.

Thus, it is hypothesised that:

H1: Inspiration will fully mediate the relationship between social norm appeals in a) decisions to purchase and b) time to purchase for a new sustainable product.

Because various types of social norms have distinct appeals, the mechanisms through which social norms influence the state of inspiration individuals feel as a result of being exposed to advertising material differ. For example, descriptive norms assume that individuals copy the behaviour portrayed because said behaviour may represent the most adaptive behavioural pattern in a given context. However, descriptive social norm appeals alone may not be motivational as they merely describe the status quo (White and Simpson 2013; Melnyk 2011). Injunctive norm appeals are expected to influence individual behaviour through the slightly different motivational mechanism of rewards, or punishments, associated with compliance or non-engagement with approved behaviours (Smith *et al.*, 2012). However, studies of injunctive norm appeals have shown mixed results, overwhelmingly pointing to their disappointing/negative outcomes (White and Simpson 2013; Melnyk 2011). Injunctive norm appeals contain overt pressure, and thus may come across as infringing on one's freedom to choose (Shultz *et al.*, 2007). While past research has suggested that injunctive norm appeals should induce changes that are more robust than those induced by descriptive norm appeals (Reno *et al.*, 1993), this study posits that injunctive norm appeals should be the least influential in producing higher levels of inspiration as they can be viewed as more coercive based on the theory of normative conduct.

The most common approach used to convey marketing information about sustainable products is the functional appeal (Lehner *et al.*, 2015). This approach highlights the functional and environmental benefits of sustainable products (Hartmann and Apaolaza-Ibáñez, 2009) and assumes that consumers will choose products that provide maximum benefits at minimal costs (Lehner *et al.*, 2015). However, consumers have consistently shown that they are not bound by rationality and display behavioural biases when making purchases of sustainable products (Lehner *et al.*, 2015). Hence, functional appeals should produce little influence on inspiration and, so, inspiration does not mediate the relationship between functional appeal and behavioural intention. Combined norm appeals, on the other hand, are believed to stimulate behaviours by highlighting that the

behaviour is commonly practiced and approved of by others (Göckeritz *et al.*, 2010). These norms contain a call for action and conformity, thus mitigating perceived pressure by providing supportive evidence that other individuals are also buying sustainable products (Schultz *et al.*, 2007). As a result, combined norms should create a greater sense of inspiration to purchase sustainable products faster as compared to descriptive, injunctive and functional appeals.

Hence, it is hypothesised:

H2: Combined (descriptive and injunctive) norms will produce greater inspiration than a) descriptive norms, b) injunctive norms, or c) functional appeal.

Method and procedure

This study uses a 4-factorial (functional product appeal x social norm appeals: descriptive norm, injunctive norm vs combined norm) between-subjects experimental design. Participants were asked to evaluate an advertisement for a sustainable new product and were randomly allocated to one of the four experimental conditions. In all conditions, consumers viewed a flyer featuring the product. The product was not available on the market where the participants resided at the time of the study so as to pre-empt prior purchases or loyalty bias. Social norms were manipulated consistent with prior research (White and Simpson, 2013). That is, descriptive norm appeals were manipulated by telling the participants that 70% of South Australians (the state where the respondents reside) were buying the new sustainable product. Injunctive norm appeals stated that respondents should buy this new sustainable product for their community. The combined norm manipulation had both descriptive and injunctive norms. The control group was shown a functional description of the new sustainable product stating that it could be purchased by South Australians, the target group for the study. An example advertisement is shown in Appendix 1. Ethics approval was granted by the authors' institution to carry out this research (H-2020-004).

Measures

All items were adapted from existing scales and measured on a 7-point Likert scale with 1 being “strongly disagree” and 7 being “strongly agree”. Group identity was measured using a 3-item scale developed by Leach *et al.*, (2008) (“I often think about the fact that I am South Australian,” “The fact that I am South Australian is an important part of my identity,” and “Being South Australian is an important part of how I see myself”). The scale exhibited satisfactory reliability in each experimental condition (Cronbach’s α : descriptive norms = .943, injunctive norms = .950, combined norms = .971, and control group = .952). Inspiration was measured using an existing measure from Watson, Clark and Tellegen (1988) (“I felt inspired after having read the flyer,” “I felt highly motivated after having read the flyer,” “I absorbed the information with great inspiration”). Inspiration exhibited satisfactory reliability in each experimental condition (Cronbach’s α : descriptive norms = .901, injunctive norms = .877, combined norms = .841, and control group = .881).

Participants’ intention to purchase the new sustainable product was measured using a scale developed by Melnyk *et al.*, (2013) (“I will buy X,” and “I will encourage my relatives and friends to buy X;”). The scale was reliable in all conditions (Cronbach’s α : descriptive norms = .821, injunctive norms = .734, combined norms = .799, and control group = .855). Time lapse to purchase was measured in months (ranging from 1 month to 13 months and beyond). Participants also specified their age, gender and educational attainment, and completed manipulation checks adapted from White and Simpson (2013) (“The flyer that you viewed mentioned only what other South Australians are buying” (descriptive norms manipulation check) and “The flyer that you viewed mentioned what South Australians want you to buy” (injunctive norms manipulation check)). Prior to the main data analysis, group identity scales were averaged and split at the median (4.33). Scores from 1 to 4.33 designated “low group identity,” whereas scores from 4.34 to 7 designated “high group identity”.

Participants

Two hundred and forty consumers from South Australia were recruited using a consumer panel provider (Table 2). Participants were required to be representative of the South Australian population in terms of age and gender. The resulting sample consisted of 240 participants (115 females and 125 males) ranging in age from 18 to 76 years old. Participants included 53% high school or university graduates, and 47 % technical or further education graduates. There was a slight over-representation of older males in the sample (Table 2). There were some gender and age differences in the combined norms appeal condition ($p < .001$, Table 3).

Table 2. Sample characteristics

	Females (n=115)		Males (n=125)		N
	N	%	N	%	
Conditions:					
Control group	31	52%	13	48%	60
Descriptive norms	30	50%	30	50%	60
Descriptive + injunctive norms	32	53%	28	47%	60
Injunctive norms	32	53%	28	47%	60
Education:					
High school	31	27%	62	50%	
Bachelor's degree	30	26%	26	21%	
TAFE/VET ^a	43	37%	32	26%	
Master's degree	8	7%	5	4%	
Doctorate degree (PhD)	3	3%	-	-	
Age:					
18-34 years	38	33%	21	17%	
35-49 years	35	30%	31	25%	
50 years and over	42	37%	73	58%	

Notes: ^a TAFE refers to technical and further education, VET refers to vocational educational training qualification.

Table 3. Descriptive statistics

	Group identity	Inspiration M (SD)	Purchase vs non-purchase (%)	Time to purchase (from 1 to 13 months) M (SD)
Control group				
<i>Gender:</i>				
Females	4.44 (1.99)	5.03 (1.86)**	21% vs 79%	3.82 (3.47)
Males	4.47 (1.85)	3.77 (1.88)**	36% vs 66%	4.95 (4.39)
<i>Age:</i>				
18-35 years	3.80 (2.11)	4.41 (2.40)	18% vs 82%	4.64 (3.58)**
36-50 years	4.31 (1.89)	4.70 (1.63)	30% vs 70%	6.35 (4.86)**
51 years and over	5.06 (1.63)	4.09 (1.91)	35% vs 65%	2.20 (1.78)**
Descriptive norms:				
<i>Gender:</i>				
Females	4.56 (2.10)	5.30 (1.51)**	13% vs 87%	3.38 (2.87)
Males	4.74 (1.79)	3.90 (1.71)**	27% vs 73%	4.32 (4.18)
<i>Age:</i>				
18-35 years	4.07 (2.11)	4.64 (1.65)	7% vs 93%	5.00 (4.56)***
36-50 years	4.40 (2.08)	4.50 (1.43)	20% vs 80%	6.88 (3.94)***
51 years and over	4.86 (1.84)	4.61 (1.90)	25% vs 75%	2.33 (1.66)***
Descriptive + injunctive norms				
<i>Gender:</i>				
Females	4.64 (1.72)	5.56 (1.25)*	4% vs 96%**	3.11 (2.61)
Males	4.54 (1.88)	4.63 (1.62)*	34% vs 66%**	3.52 (3.93)
<i>Age:</i>				
18-35 years	4.47 (2.04)	5.07 (1.71)	13% vs 87%	3.69 (4.00)
36-50 years	4.63 (1.30)	5.47 (1.07)	16% vs 84%	4.37 (3.69)
51 years and over	4.62 (2.02)	4.72 (1.67)	28% vs 72%	2.06 (1.47)
Injunctive norms:				
<i>Gender:</i>				
Females	4.95 (1.80)	5.54 (1.20)***	7% vs 93%	3.46 (2.97)
Males	4.94 (1.56)	4.13 (1.77)***	19% vs 81%	4.30 (4.79)
<i>Age:</i>				
18-35 years	5.02 (1.04)	5.00 (1.60)	8% vs 92%	5.00 (4.44)
36-50 years	4.74 (1.81)	5.00 (1.32)	12% vs 88%	4.80 (4.31)
51 years and over	4.94 (1.83)	4.58 (1.89)	16% vs 84%	2.88 (3.43)

Notes: *** $p < .001$, ** $p < .01$, * $p < .05$.

Results

To test the hypotheses, Process Hayes (model 7) was performed. This model (moderated mediation) assesses conditional indirect effects and mechanisms by which a variable (X) exerts its influence on another variable (Y) (Hayes, 2018).

In testing H1 – inspiration will fully mediate the relationship between social norm appeals and a) decisions to purchase and b) time to purchase a new sustainable product – the following results were obtained. The indices of direct effects of social norm appeals on purchase vs non-purchase fall within the confidence interval that includes zero (descriptive norm appeals from -0.83 to 0.69; combined norm appeals from -0.58 to 0.96; and injunctive norm appeals from -0.58 to 0.89), suggesting that the index is insignificant and there was no direct effect of the appeals on the purchase vs non-purchase decision. The same occurred for the indices of social norm appeals on time lapse to purchase (see Table 5). Full mediation suggested for H1a (purchase vs non-purchase) is .80 with a 95% confidence interval ranging from 0.55 to 1.05 (Table 4). Mediation (for time lapse to purchase – H1b) is -.71 with a 95% confidence interval ranging from -1.09, -.32 (Table 5). Zero as a value does not fall within these ranges. This suggests that the indices are significant and there is a conditional indirect effect of experimental manipulations on the purchase vs non-purchase decision and time lapse to purchase via inspiration. Inspiration is positively related to purchase as opposed to non-purchase (.80, Table 4) and time lapse to purchase (-0.71, Table 5). This index indicates that consumers with higher levels of inspiration will make a purchase (as opposed to non-purchase) decision and have a shorter time lapse before purchase. Thus, H1 is fully supported.

H2 predicts that combined (descriptive and injunctive) norms will produce greater inspiration than a) descriptive norms, b) injunctive norms, or c) functional appeal. Group identity of consumers moderates the indirect effects of social norm appeals on purchase decision and time lapse to purchase a new sustainable product via inspiration. The interaction effects are significant for consumers that were experimentally exposed to combined norm appeals only (Tables 4 and 5). The moderation index for combined social norm appeals x group identity x inspiration x purchase vs non-purchase was statistically significant (1.13, Table 4), suggesting that, among those who have higher group identity,

the combined norm appeal will be more successful in producing higher level of inspiration and purchase intent. The moderation index for combined social norm appeal x group identity x inspiration x time lapse to purchase was likewise statistically significant (-.95, Table 5), suggesting that, among those who have higher group identity, the combined norm appeal will be more successful in producing faster product adoption (measured in months). Thus, H2 and H3 were fully supported.

The results of current study suggest that there is an interaction between appeal type and in-group identity (H2) that produces different levels of inspiration (H1a) (see Figure 2), which in turn influence behavioural outcomes (H1). Those who felt more inspired were less likely to say they would never purchase this new sustainable product (H1a) and reported shorter time lapse before purchase (measured in months) (H1a). The results support the full moderated mediation model via inspiration where inspiration could be a pathway between social norms and behavioural change.

Table 4. Results – Process Hayes Model 7 for purchase vs non-purchase (n = 235)

Path:		B (SE)	p<	95% CI	H	
X1		-.07 (.39)	-0.19 (.85)	-0.83, 0.69	H1	Not sig
X2		.19 (.39)	0.48 (.63)	-0.58, 0.96		Not sig
X3		.15 (.37)	0.40 (.68)	-0.58, 0.89		Not sig
X1 x group identity	→ Inspiration	.62 (.57)	1.07 (.27)	-0.50, 1.75	H2	Not sig
X2 x group identity		1.22 (.58)	2.11 (.03)	0.09, 2.37		Sig
X3 x group identity		.30 (.59)	0.50 (.61)	-0.86, 1.46		Not sig
Inspiration		.80 (.13)	6.31 (.001)	0.55, 1.05	H1a	Sig
X1		.38 (.52)	0.71 (.47)	-0.65, 1.40	H1	Not sig
X2	→ Purchase vs	-.08 (.54)	-0.15 (.87)	-1.13, 0.97	H1	Not sig
X3	non-purchase	.86 (.57)	1.49 (.13)	-0.27, 2.00	-	Not sig
<i>Indirect effect:</i>						
X2 x group identity → inspiration → Purchase vs non-purchase		1.13 (.44)	-	0.42, 2.18		Sig

Notes: X1 – Descriptive norm appeal =1, all other groups = 0.

X2 – Combined norm appeal =1, all other groups = 0.

X3 – Injunctive norm appeal =1, all other groups = 0.

Group identity – low = 1, high = 0.

Purchase vs non-purchase: purchase = 1, non-purchase = 0.

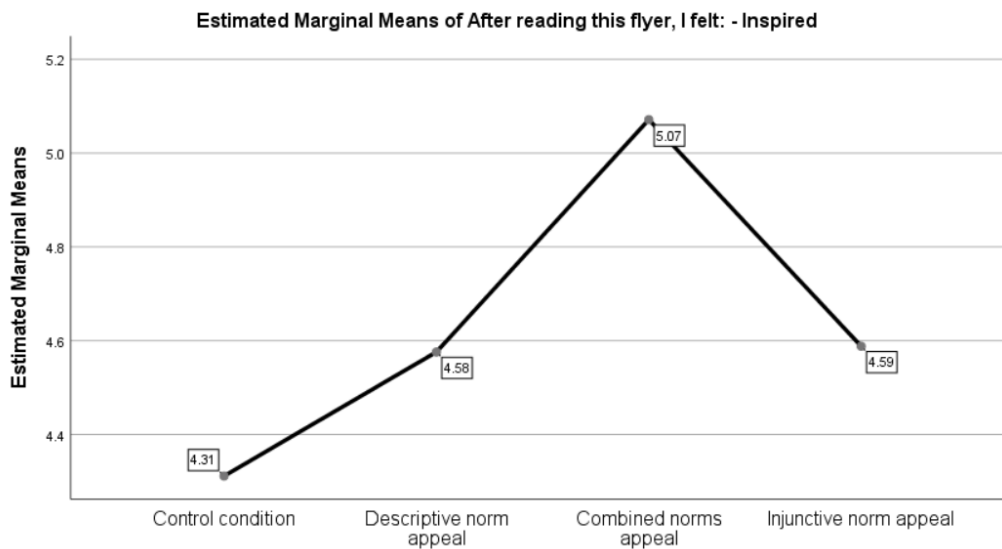
R²: inspiration – 48%, purchase vs non-purchase choice – 39%.

Table 5. Results – Process Hayes Model 7 for time to purchase (for those who said they will purchase new sustainable product, n = 187)

Path:		B (SE)	t (p<)	95% CI	H	
X1		-.04 (.36)	-0.12 (.91)	-0.74, 0.66	H1	Not sig
X2		.15 (.35)	0.48 (.67)	-0.54, 0.84		Not sig
X3		-.09 (.33)	-0.26 (.80)	-0.74, 0.57		Not sig
X1 x group identity	→ Inspiration	.52 (.54)	0.95 (.34)	-0.56, 1.60	H2	Not sig
X2 x group identity		1.18 (.56)	2.11 (.04)	0.08, 2.28		Sig
X3 x group identity		.46 (.56)	0.83 (.41)	-0.63, 1.56		Not sig
Inspiration		-.71 (.19)	-3.64 (.001)	-1.09, -0.32	H1a	Sig
X1		-.49 (.75)	-0.65 (.51)	-1.96, 0.99	H1	Not sig
X2	→ Time to purchase (in months)	-.67 (.76)	-0.88 (.38)	-2.17, 0.84	H1	Not sig
X3		-.43 (.74)	-0.59 (.56)	-1.90, 1.02		Not sig
<i>Indirect effect:</i>						
X2 x group identity → inspiration → Time to purchase (in months)		-.95 (.46)	-	-1.97, -0.18		Sig

Notes: X1 – Descriptive norm appeal =1, all other groups = 0.
 X2 – Combined norm appeal =1, all other groups = 0.
 X3 – Injunctive norm appeal =1, all other groups = 0.
 In-group identity – low = 1, high = 0.
 R^2 : inspiration – 48%, time to purchase – 30%.

Figure 2: Interaction between experimental appeals and inspiration (H1a)



Discussion

While there is a large body of knowledge dealing with consumer emotions and sustainable consumption, including the negative and positive effects of these (Phipps et al., 2013; Harth, 2013), only a modicum of the empirical literature considers the effect of inspiration as a motivational state on sustainable behaviour. This study examined the mediating role of inspiration as a motivational state on the relationship between social norm appeals and intention to purchase sustainable products, as well as time lapse to doing so. The findings confirm the strong effects that characterise intentional outcomes of combined norm appeal compared to other types of appeals (Schultz, 2007; White and Simpson, 2013). More importantly, whether and how soon the consumer intends to purchase a new sustainable product is positively related to how much they are inspired by the message in marketing communication. The findings indicate that inspiration mediates the relationship between social norm appeals and decision to purchase, as well as time lapse to purchase. In other words, inspiration was found to be a mechanism through which social norms affect sustainable behaviour.

Moreover, the study uncovers a significant three-way interaction between social norms, group identity, inspiration and purchase intention. More specifically, combined social norm appeals are more effective than functional appeals and injunctive and descriptive norm appeals in prompting greater inspiration to purchase new sustainable products. The more inspired the individuals feel, the greater their desire to buy a product sooner. Conversely, message wording that simply enumerates functional benefits or/and “pushes” a consumer adversely affects future behaviour. It was also found that group identity moderates the relationship between social norm appeals and inspiration. The strength of the moderation effect was weaker for individuals with low group identity compared to those with higher group identity. The findings suggest that the interaction between combined norm appeals, group identity and inspiration exert influence on consumer choices to purchase a sustainable product and time lapse to purchase.

This research and its theoretical basis hold valuable implications for the growing literature on the determinants of sustainable consumption and make three main contributions to the body of knowledge on normative conduct and social identity theories.

First, it compares all three types of social norm appeals in addition to functional appeals. This has not been done before and presented a research gap that has now been filled. There are documented variations in the motivational mechanism through which each type of social norm influences individuals; however, previous research has omitted comparison of the various influences of different types of social norms vs functional appeal. To date, research approaches investigating the influence of various types of social norm appeals on sustainable consumption behaviour have been disparate. Second, by integrating normative conduct theory (Cialdini *et al.*, 1990) and social identity theory (Tajfel and Turner, 1979), the study details a process of normative influence depending on group identity salience (low vs high) on the decision to purchase sustainable products and time to do so. Results of the current study indicate that group identity moderates the relationship between combined social norm appeal and inspiration when the target group is pertinent.

Third, Melnyk *et al.*, (2011) suggested on a theoretical level that social norms can create positive and negative thoughts/feelings and can affect intention to act. This study lends itself to the revision of the model of emotional appraisals developed through qualitative research in extant studies (Phipps *et al.*, 2013; Harth, 2013). The model that was tested for this research suggests a few additional predictions that, within the framework of this research, are supported by the quantitative data.

Implications for practice

In addition to the theoretical contributions, our findings also have several practical implications. Marketers can influence consumers' intention to purchase green products through the use of effective social norm appeals that make consumers feel inspired. Specifically, combined social norm appeals had the greatest influence on consumers' level of inspiration and, in turn, lead to the intention to buy a product sooner. These findings open possibilities for design marketing campaigns targeted at sustainable consumer behaviour. Based on our findings, such messaging will be most effective if it also emphasises (a) both injunctive and descriptive norm appeals, (b) appeals to salient group identity, and (c) makes consumers feel inspired by the source (i.e, a group that is psychologically close). Consumer behaviour comes with complexities. Our findings

reiterate that, if a consumer has high group identity, their behavioural intentions will reflect that influence. However, it is important to note that, if a consumer has a high group identity, it does not mean that it will translate into a sustainable purchase. Functional product appeals have shown little effectiveness in instilling a sense of inspiration to purchase. Thus, for effective communication initiatives a combined social norms approach is highly recommended. The results of this study also indicate that it is important to customise strategies to target appropriate segments of consumers such as committed and engaged pro-environmental consumers who identify with the reference (geographical) group. The choice of the message needs to be carefully weighed since marketers may not know what proportion of consumers identify with the group. Our findings suggest that persuading consumers with little regard to what the group does using product functional information (control) or messages that describe what others do (e.g., descriptive appeal) is not effective. Combined social norm appeals, using claims about what others do and what consumers should do, have more impact and appeal to a wider range of consumers (even those with low group identity). We also found that communication with inspiring messages increased behavioural uptake. Inspiration could be leveraged in social marketing campaigns in order to increase people's willingness to consume responsibly in the future (e.g., Purchasing a green product is not about the product – it is about people; Every time you spend money you make the whole country proud; There is no such thing as “away” when you do not throw away you must be proud (Bigne *et al.*, 2017; Napoli *et al.*, 2014)).

Limitations and further research directions

The methodological limitations of this study are largely related to the use of a self-report questionnaire and survey panel. While online panels typically try to use probability recruitment methods, there is always a risk that there might be some degree of sample bias. Similarly, hosting the survey online may bias the sample towards respondents who have access to the internet (Borg & Smith, 2018). Nevertheless, to ensure that the sample broadly reflected the target population, sampling quotas were applied. Second, self-report online surveys are subject to a number of limitations such as randomised responding and

extreme responding (Paulhus & Vazire, 2007). Quality appraisal procedures were followed in an attempt to identify and correct these errors where practicable—for example, respondents who completed the survey too quickly or answered all Likert-type questions with mid-point responses were excluded. Furthermore, the evaluation of future purchase intentions relies on a self-report measure which is subject to social desirability bias and does not necessarily reflect an individual's true behaviour. Thus, future research which employs alternative measures of behaviours, such as observation, is recommended.

Further research could also explore the role of other relevant reference group (i.e. media, country) messaging on normative perceptions and on the moderators of sustainable behaviours, such as the perceived benefits of performing such behaviours. For example, better understanding of the extent to which exposure from different environmental cues, such as the media, affects different outcomes in the theory of normative influence is needed (Mead, Rimal, Ferrence, and Cohen 2014).

Future research could also pursue theoretical avenues that stem from the self-construal level framework (i.e. collectivistic or individualistic), such as revisiting the antecedents to consumer intentions to engage in sustainable actions, i.e. self-identification levels and importance of various important reference groups such as media, state, etc., (White and Simpson, 2013; Masson and Fritsche, 2014).

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Appendix 1

Experimental Manipulations

Due to copyright, the images of the product are available upon request.

Control group: Functional appeal



Help save the planet by using NOHBO

NOHBO is an eco-friendly single use personal care product (single use shampoo) that eliminates the problem of plastic waste by using biodegradable packaging that dissolves in water. No harsh chemicals, free of parabens and sulfates. An average South Australian produces 1.5 tonnes of waste a year, most of which is plastic. South Australian consumers can reduce the amount of plastic going into landfill by buying products like NOHBO.

Descriptive only appeal

South Australians are buying NOHBO for a safer environment

Why South Australians are buying NOHBO?
NOHBO is an eco-friendly single use personal care product (single use shampoo) that eliminates the problem of plastic waste by using biodegradable packaging that dissolves in water. No harsh chemicals, free of parabens and sulfates.

An average South Australian produces 1.5 tonnes of waste a year, most of which is plastic. A recent survey indicates that 70% of South Australians have started buying NOHBO in the past year.



Injunctive only appeal

South Australians should buy NOHBO for a safer environment

Why South Australians are buying NOHBO?
NOHBO is an eco-friendly single use personal care product (single use shampoo) that eliminates the problem of plastic waste by using biodegradable packaging that dissolves in water. No harsh chemicals, free of parabens and sulfates.

An average South Australian produces 1.5 tonnes of waste a year, most of which is plastic. Buying such a product is something you should do for your community.



Combined appeal

South Australians are buying NOHBO for a safer environment

Why South Australians are buying NOHBO? NOHBO is an eco-friendly single use personal care product (single use shampoo) that eliminates the problem of plastic waste by using biodegradable packaging that dissolves in water. No harsh chemicals, free of parabens and sulfates.

An average South Australian produces 1.5 tonnes of waste a year, most of which is plastic. A recent survey indicates that 70% of South Australians have started buying NOHBO in the past year. They also think that you should join them and buy NOHBO. Buying such a product is something you should do for your community.



Appendix 2

Description of Experimental Designs

Condition	Appeal
Product Functional Appeal Only	NOHBO is an eco-friendly single use personal care product (single use shampoo) that eliminates the problem of plastic waste by using biodegradable packaging that dissolves in water. No harsh chemicals, free of parabens and sulfates. An average South Australian produces 1.5 tonnes of waste a year, most of which is plastic.
Injunctive Only Appeal	Why South Australians are buying NOHBO? NOHBO is an eco-friendly single use personal care product (single use shampoo) that eliminates the problem of plastic waste by using biodegradable packaging that dissolves in water. No harsh chemicals, free of parabens and sulfates. An average South Australian produces 1.5 tonnes of waste a year, most of which is plastic. Buying such a product is something you should do for your community.
Descriptive Only Appeal	Why South Australians are buying NOHBO? NOHBO is an eco-friendly single use personal care product (single use shampoo) that eliminates the problem of plastic waste by using biodegradable packaging that dissolves in water. No harsh chemicals, free of parabens and sulfates. An average South Australian produces 1.5 tonnes of waste a year, most of which is plastic. A recent survey indicates that 70% of South Australians have started buying NOHBO in the past year.

Combined
Appeal

Why South Australians are buying NOHBO? NOHBO is an eco-friendly single use personal care product (single use shampoo) that eliminates the problem of plastic waste by using biodegradable packaging that dissolves in water. No harsh chemicals, free of parabens and sulfates. An average South Australian produces 1.5 tonnes of waste a year, most of which is plastic. **A recent survey indicates that 70% of South Australians have started buying NOHBO in the past year. They also think that you should join them and buy NOHBO. Buying such a product is something you should do for your community.**

CHAPTER 4. STUDY 3: HOW MUCH IS ENOUGH? IN-GROUP FRAMING AND SOCIAL COMPARISON EFFECTS ON INTENTION TO INCREASE SUSTAINABLE BEHAVIOURS

Chapter 4 features the third and final paper in this thesis – *How much is enough? In-group framing and social comparison effects on intention to increase sustainable behaviours*. Guided by the research outcomes in Chapter 2 and 3, the aim of this study is to further investigate persuasive effects of descriptive norms appeal framed in both positive and negative fashion to highlight the influence of reference groups on the sustainable behaviour dimension. Specifically, it examines how consumers' social comparison attenuates effectiveness of messages with positive and negative in-group framing on future intention to increase the number of sustainable actions. The research methodology in this chapter involves the collection and analysis of primary quantitative online experiment data. This chapter is presented in International Journal of Consumer Studies format. The contribution ratio of all authors of this paper is highlighted on the following page, before the abstract of the main paper.

Statement of authorship

Statement of Authorship

Title of Paper	How much is enough? In-group framing and social comparison effects on intention to increase sustainable behaviors
Publication Status	<input type="checkbox"/> Published <input type="checkbox"/> Accepted for Publication <input type="checkbox"/> Submitted for Publication <input checked="" type="checkbox"/> Unpublished and Unsubmitted work written in manuscript style
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Principal Author

Name of Principal Author (Candidate)	Olga Tarabashkina
Contribution to the Paper	I conceptualised the research paper, designed and conducted experiments for data collection and analysis, interpreted data and wrote manuscript.
Overall percentage (%)	70%
Certification:	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper.
Signature	Date 21 11 2021

Co-Author Contributions

By signing the Statement of Authorship, each author certifies that:

- i. the candidate's stated contribution to the publication is accurate (as detailed above);
- ii. permission is granted for the candidate to include the publication in the thesis; and
- iii. the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.



Name of Co-Author	Sally Rao Hill
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Signature	Date 22/11/2021

Please cut and paste additional co-author panels here as required.

STUDY 3: HOW MUCH IS ENOUGH? IN-GROUP FRAMING AND SOCIAL COMPARISON EFFECTS ON INTENTION TO INCREASE SUSTAINABLE BEHAVIOURS

Abstract

Encouraging consumers to behave in a sustainable manner by increasing sustainable behaviour remains a challenge for social marketers and behavioural scientists. The aim of this study is to examine the effects of in-group framing and social comparison on intentions to increase sustainable behaviours. Specifically, this study explores how in-group framing influences intentions to increase sustainable behaviours via group image concern. Drawing on social comparison theory, this study uses an experimental design to uncover the moderating impact of social comparison (upward or downward) on the relationship between in group framing (negative vs positive) and intention to increase sustainable behaviours. The results of a 3-factorial between-subject experiment show that individuals experiencing upward comparison under a negative in-group framing condition report a significant increase in intention to increase the number of sustainable behaviours as compared to individuals under a positive in-group framing condition. However, when individuals experienced downward comparison, neither positive nor negative in-group framing had any effects on their intention to increase the number of sustainable behaviours. The results highlight the conditions under which communicating information about the behaviours of relevant in-group members can be used to spur consumers to engage in sustainable actions. The study extends the knowledge of social comparison theory by demonstrating that comparisons that occur in negative in-group framing conditions have implications for future behavioural intentions.

Keywords: in-group framing, sustainability, sustainable behaviour, social norms, social comparison

Introduction

Concerns have been raised over the past two decades about individual levels of consumption and the impacts of these on climate change and biodiversity, with a focus on sustainable consumption as a potential solution (Anagnostou et al., 2015; Cerri et al., 2018; Chabowski et al., 2011; Crittenden et al., 2011; Huang and Rust, 2011; Lim, 2017; Maccioni, 2018; Borg, Curtis and Lindsay, 2020). The importance of an urgent transition to more sustainable consumption has been highlighted by the Intergovernmental Panel on Climate Change, which also projects a grim overall forecast if the necessary steps are not undertaken by individuals and governments in the near future (IPCC, 2021). While the importance of more sustainable behaviour is clear, promoting said behaviour presents one of the biggest challenges faced by social marketers and behavioural scientists (Maccioni, 2018).

In an attempt to motivate consumers to transition to sustainable consumption levels, in April 2020 the Australian Government and several energy companies introduced an add-on service that allows for the comparison of one's household energy usage with others in the same area for the purpose of cutting down consumption rates (IPCC, 2021). Social comparison facilitates competition, tapping into users' intrinsic drive for cognition and extrinsic need for social status (social recognition) (Weiksner et al., 2008).

Findings from social psychology research show that consumers are not bound by rationality when making purchase decisions and often display behavioural biases towards their group, comparing the performance of other group members to their own (Lehner et al., 2015). Consumers may also be reluctant to compare their behaviour to that of out-groups (Lehner et al., 2015). This means that social in-group comparison may be an important factor in promoting sustainable products purchase (Lehner et al., 2015). There is an array of social comparison studies in the social psychology literature that focus on social comparison information and the functions of comparison (whether assimilative or contrastive); however, studies of the effects have shown mixed results across various consumer studies (Fritsche, Bart and Jugert, 2018). Research on social comparison in the context of sustainable research is scarce.

In addition to social comparison, the use of descriptive social norm appeals has been found to positively impact sustainable behaviour (Smith and Louis, 2009; White and Simpson, 2013; Masson and Fritsche, 2014). Descriptive norm appeals relay information on what is an acceptable behaviour (Deutsch and Gerard, 1955), but some research has indicated that descriptive norm appeals can have unintended consequences (Shultz, 1999; Shultz, 2007). In the context of energy consumption, households with lower energy use increased their usage after learning about the energy consumption of neighbours (Nolan et al., 2008). This effect disappeared only when descriptive norms were also added to the appeal (White and Simpson, 2013). In our research, we investigate normative influence (descriptive norm wording) from the perspective of individual social comparison – a topic that, to date, has been given surprisingly little attention in the sustainability research.

While extant research has provided some insights into the effectiveness of using separate social comparison and social norm appeal approaches, findings are far from being conclusive. Social norms are often included as an antecedent to explain sustainable behaviours (e.g. Paul, Modi & Patel, 2016; Halskov, 2010; Lin, 2007). For example, the theory of planned behaviour (Ajzen, 1991) is most commonly used. However, a “traditional model structure without modification is more suited to the prediction of self-interested behaviours” (p.40). Since its inception, the TPB has been extensively reviewed, with most meta-analyses supporting its ability to explain/predict intention and behaviour. Despite the majority of sustainability research literature services literature employing TPB, a few studies have adopted a combination of several theories (Luarn & Lin, 2005; Yang, 2015). This study, therefore, combines the TPB and social comparison theory to explain consumers’ intentions to increase number of sustainable behaviours. We selected both theories as a base for our proposed conceptual model due to their predictive ability and high explanatory power (Hunt, 2011). Both theories have been applied to a variety of contexts, and many studies have extended them with additional constructs (Michaelidou & Hassan, 2014). Particularly with regard to sustainability studies, researchers have acknowledged that individuals are influenced by more factors than currently considered by either the TPB or self comparison theory (Chang et al., 2012; Kim et al., 2014). The authors have therefore decided, after careful examination and

analysis of the sustainability and social marketing research literature, to include two additional constructs in the conceptual model. These additions include in-group framing and group image concern.

In-group framing can play a role in influencing behaviour. Despite this, previous research on the behavioural implications of normative messages has failed to examine the important distinction between the two approaches used for message framing (positive in-group frame and negative in-group frame) embedded in a descriptive normative appeal that could greatly affect behavioural intentions. In general, research on the effect of in-group framing on sustainable consumptions suggests that a negative framing of issues serves as a stronger push for consumers to engage in sustainable consumption behaviours compared to positive in-group framing (Cialdini et al., 2006). However, research specifically examining the role of in-group framing in influencing prosocial conservation behaviours has produced mixed results. For example, negatively framed in-group messages from a personal acquaintance are the most effective at influencing actual recycling behaviours (Crawford & Cacioppo, 2002), while positive in-group frames have been found to lead to more favorable attitudes toward curb-side recycling (Dijksterhuis & Aarts, 2003; Fazio, Eiser, & Shook, 2004) and water conservation activities (Rozin and Rayzman, 2001). Hence, it remains unclear whether negative in-group framing about collective in-group behaviour is more effective than positive in-group framing in encouraging sustainable consumer behaviours (White, MacDonnell and Dahl, 2011). The current research aims to provide insight into this lack of clarity by identifying an important moderator—the social comparison experienced by the consumer—that elucidates when negative versus positive in-group framing is most effective in increasing the number of sustainable behaviours. In-group framing posits that sustainability messages can be stated in ways that either encourage desirable behaviour or discourage undesirable conduct. For instance, a message could encourage consumers to increase their sustainable behaviours by highlighting that the majority of consumers currently outperform them ('The great news is that a recent study has shown that a typical Australian regularly performs 7 out of 9 of the above-mentioned sustainable behaviours'), or it could urge them not to do more because others are not doing a lot yet ('Unfortunately, a recent study has shown that a typical Australian regularly performs

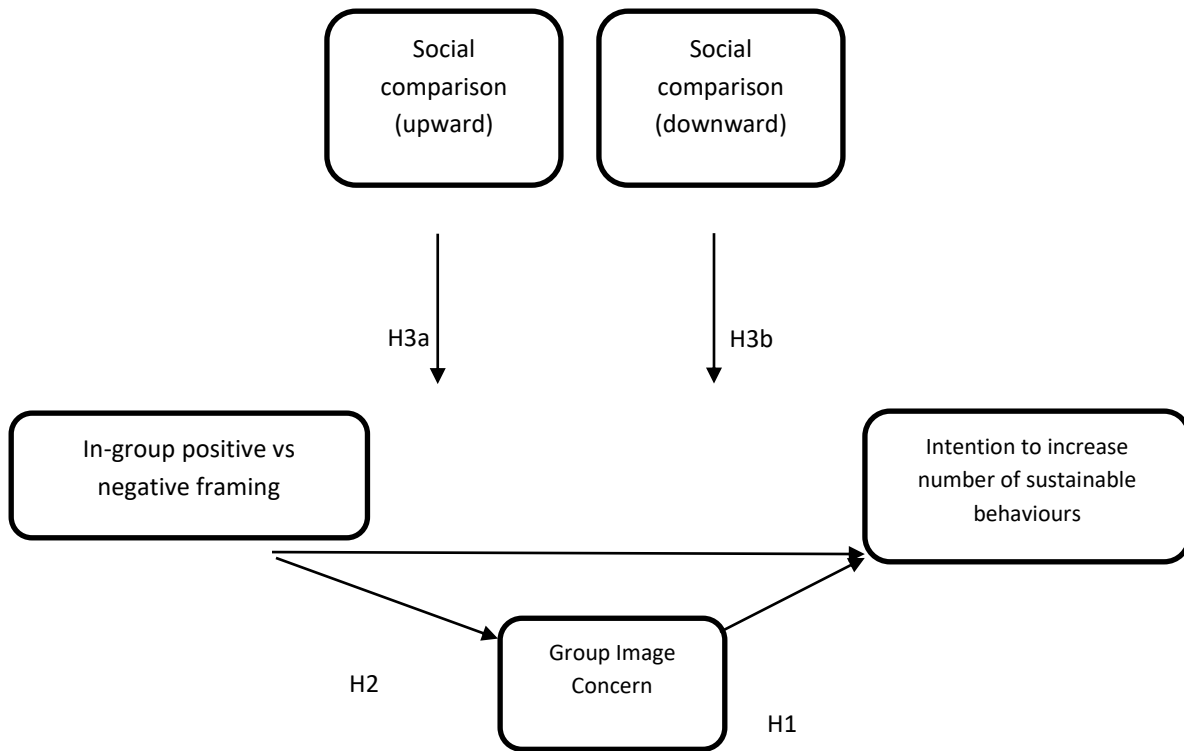
only 2 out of 9 of the above-mentioned sustainable behaviours’). Which would be more influential in affecting the behavioural uptake of the sustainable behaviours?

The second additional construct that is included in our model is group image concern. We consider the boundary condition of individual’s social comparison direction in the effects of descriptive norm appeal on intention to increase the number of sustainable behaviours. In general, individuals have different levels of concern for a group’s image when presented with either positive or negative information about the in-group’s behaviour (Gatersleben *et al.*, 2017). This study posits that, how consumers respond to in-group framing messages depends on their level of group image concern (high vs low). Overall, this study aims to expand on the knowledge of factors that play a role in influencing sustainable behaviour (such as reusing before recycling, using non-toxic homemade cleaning products, purchasing goods that are environmentally sustainable etc.) by comparing the effects of differently framed messages within the framework of commonly used appeals - descriptive social norm appeals - in the marketing of sustainable consumption. Thus, we incorporate the moderator of social comparison and the mediator of group image concern into our framework to provide a more nuanced explanation of how social norm appeals might work. Specifically, we examine how in-group framing effects on sustainable consumption intentions may be contingent upon the direction of a consumer’s social comparison during the appeal evaluation process. That is, this research tackles the following question: *How can social comparison in sustainable communication be utilised for the purpose of increasing the uptake of sustainable behaviours?*

In addressing this research question, the present research aims to contribute to three main areas of theory and practice. Firstly, the intention of this research is to extend previous knowledge on in-group message framing and sustainable behaviours (e.g. Fazio, Eiser, & Shook, 2004), showing that social comparison (downward vs upward) can change the effects of in-group framing on sustainable behaviours. Secondly, the aim of this research is to extend previous findings on social comparison (Argo *et al.*, 2014; Argo *et al.*, 2013), providing further evidence of the impact of social comparison on sustainable behaviours. To the best of the authors’ knowledge, this approach to examining in-group framing and social comparison effects is unique and has not been utilised in other fields. Finally, this

research has managerial implications regarding how societies and businesses can devise practical intervention strategies to increase sustainable behaviour.

Figure 1: Conceptual model



Theoretical background

Framing and in-group framing

Framing refers to the process by which people develop a particular conceptualisation of an issue or reorient their thinking about an issue (Chong and Druckman, 2007). In other words, the notion of framing is related to how individuals and groups perceive and communicate about the world (Dahl, 2015). The major premise of framing theory is that an issue can be viewed from a variety of perspectives and be construed as having implications for multiple values or considerations (Dahl, 2015). The framing effect, resulting from message or valence framing, is described as a cognitive bias emerging from the way information is communicated or presented (Entman, 1993; Plous, 1993; Levin et al., 1998; Avineri and Waygood, 2013). Framing has been found to be important in sustainability research (Ferguson, Branscombe and Reynolds, 2011). The comparative context of framing provides a frame of reference for interpreting current group norms. Decision making can then be altered by the potential perceived losses (loss frame) or perceived gains (gain frame) from a specific reference point from which information is presented.

Framing has been found to influence how people think and behave (e.g. Putrevu, 2001; Lindeman and Verkasalo, 2005). For example, in a medical setting, respondents reported more positive future intentions when presented with a positive frame (e.g., Think about what will be gained if we keep doing breast screening every two years - 90% lives saved) versus negative (Think about what will be lost if we do not keep doing breast screening - 10% lives lost) (Avineri and Waygood, 2013).

Similarly, framing is found to influence how individuals react to social norm information. Previous studies in retail contexts have shown that framing has strong effects on shopping orientation and behaviours (Mortimer and Weeks, 2011; Kotzé et al., 2012). For example, participants in a positive framing condition ('A few thousand shoppers in our mall have benefitted from a chat café situated on the second floor') had more positive attitudes towards social interaction when shopping than individuals who were exposed to a negatively framed condition i.e. one that highlight the negative consequences if a behaviour is not undertaken (Kuruvilla et al., 2009).

Framing theory has been applied in various contexts such as politics, consumer behaviour, health and environmental communication, and has produced contradictory results. There is currently no consensus as to which framing valence (e.g., positive or negative) leads to more behaviour change in a specific context (Entman, 1993; Levin et al., 1998; Piñon and Gambara, 2005; Entman et al., 2009; Spence and Pidgeon, 2010; Cheng et al., 2011; Kim and Kim, 2014; Baxter and Gram-Hanssen, 2016). For instance, subjects reported higher average positive attitudes towards climate change mitigating behaviours when the benefits of such behaviour were highlighted rather than the risks and threats of refraining from undertaking said behaviours (Spence and Pidgeon, 2010; Maibach et al., 2014). Yet, in another study which tested whether gain or loss framing had a higher impact on provoking respondents to donate money and time to biodiversity conservation organizations, it was found that the negatively framed audio, together with 360° virtual reality video, resulted in more money donated (Nelson et al., 2020).

Although research has been done in the field of framing in various contexts such as politics, consumer behaviour, and health and environmental communication, many contradictory results exist, and the effects of framing valence (e.g., positive or negative) are not conclusive (Entman, 1993; Levin et al., 1998; Piñon and Gambara, 2005; Entman et al., 2009; Spence and Pidgeon, 2010; Cheng et al., 2011; Kim and Kim, 2014; Baxter and Gram-Hanssen, 2016). For instance, in a study where the benefits of performing climate change mitigating behaviours were highlighted, subjects reported higher average positive environmental attitudes in comparison to the frame focusing on the risks and threats of refraining from mitigation behaviours (Spence and Pidgeon, 2010; Maibach et al., 2014).

In addition to inconsistent findings as to the effects of framing valence, previous research has a narrow focus on individual outcomes (e.g., neglecting to perform breast self-examination could have direct consequences for a person) with group/collective level of outcomes having been neglected. Prior research has shown that messages with a descriptive norm appeal give people cues about an expected behaviour (or inappropriate behaviour) and thus induce conformity (Schultz, 1999; Nolan et al., 2008). This suggests

that framing with a collective outcome (i.e. reducing CO2 emissions) could be impactful in influencing behaviour.

Sustainable actions such as recycling, repurposing, and using renewable sources of energy involve a unique self-control trade-off: in the short run, it would be more convenient for a person to simply discard materials without having to store, organize, and place them out for recycling or repurposing, but in the long run, recycling and repurposing positively affects collective well-being. Therefore, a person must engage in inconvenient behaviours that are a cost to the self in the short run to benefit the collective good in the long run. Thus, such behaviours do not fit well into frameworks that highlight consequences only for the individual, such as those that involve risky implications (Meyers-Levy and Maheswaran, 2004) or prevention-detection behaviours (Rothman and Salovey, 1997). We test a model that should not only predict self-oriented behaviours but also be effective in determining more other-oriented behaviours such as reducing consumption of meat-products, recycling and repurposing.

In-group framing of social norms and group image concerns

One of the most frequently used appeals in sustainable marketing is the descriptive social norm appeal. It is widely used for its noninvasive nature as it does not violate individual's autonomy in the actions undertaken (Schultz, 2007). This type of social norm appeal conveys information about behaviours that receivers might copy if they represent the most adopted behavioural pattern. That is, descriptive norms may represent a typical behaviour in a group (Cialdini et al., 1991; Smith et al., 2012; Thøgersen, 2006), thus offering a standard for modelling one's own behaviour (Clapp and McDonell, 2000). Descriptive norms thus help consumers navigate a complex social environment. For example, others help determine a "correct" course of action when someone is making a decision i.e. what products to purchase or how to maintain health (Deutsch and Gerard, 1955; Gockeritz et al., 2010). In the context of sustainable product purchases, descriptive norm appeals can be used to minimise consumer reactance to information (Schultz, 2007).

While prior research on descriptive norm appeals provided some insights in the area of sustainability marketing, the question of their effectiveness in differing message framing remains. Our research intent is to provide insight by identifying an important mediator of normative appeal influence—group image concerns reported by the consumer—that should clarify when positive in-group versus negative in-group framing will be most effective in promoting sustainable behaviours. The concept of group image concern is linked to self-affirmation theory, which proposes that people have a desire to protect and maintain group-integrity or group-worth (Steele, 1988). According to the theory, when group-level self-worth is threatened, individuals respond in ways that enable them to restore group-worth (Steele, 1988; Steele and Liu, 1983; White and Argo, 2009). Furthermore, the theory proposes that, when a person's in-group is threatened and then given the opportunity to restore feelings of group-worth through an alternative means (e.g., through affirming important group values), group-protective reactions to the threat are often mitigated (Steele, 1988; Steele and Liu, 1983).

Recall that our conceptual framework proposes that receiving information about the negative performance of in-group members threatens group image when the setting is public i.e. mentioned in the newspaper. Building on this logic, we expect that group image concern should increase with individual desire their group be presented in a positive light (e.g., Hoshino-Browne et al. 2001; White, Argo, and Sengupta 2012), leading to an increase in likelihood of conformity to the described behavioural norm in the future.

Thus, a positive framing to message in-group members' performance should diminish the tendency for consumers to experience group image concern (Figure 1). However, learning that one's group has performed comparatively well is not particularly threatening to the group or individual and, therefore, we do not anticipate any differences across social comparison levels (upward or downward).

Thus, a group-image affirmation tendency should diminish the tendency for consumers to exhibit similar intentions portrayed in the negative in-group frame (i.e. perform only few sustainable actions from the list) and significantly increase the intentions to behave sustainably (to do more than the others). In contrast, learning that one's group has

performed comparatively well (most individuals perform majority of actions) is not particularly threatening to the group or individual and, therefore, differences across conditions are not anticipated. In summary, we predict that:

H1: The relationship between in-group framing and intention to increase number of sustainable behaviours is mediated by group image concern.

Prior research has provided evidence that negatively framed in-group messages are more compelling in influencing behavioural intentions in health communication (for reviews, see Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). There are varying explanations for this effect. In general, negative information generates greater attention, enhanced depth of processing, and weight in consciousness (Crawford & Cacioppo, 2002; Dijksterhuis & Aarts, 2003; Fazio, Eiser, & Shook, 2004). This is because it requires a higher level of involvement with the issue, which leads to an increase in positive behaviour and decrease in negative behaviour (i.e. littering) (White, MacDonnell and Dahl, 2011). We thus posit that the effect of negative in-group framing is greater when the information about the in-group casts one's own group image in an unfavourable light. Following this line of reasoning, learning about the unsuccessful performance of in-group members should motivate a consumer's willingness to engage in more sustainable actions compared to when the behaviour of in-group members is positive. This is because, learning about an in-group's strong performance on positive behaviour has no potential to make the group look bad compared to other groups. Thus, we predict that the negative frame will have a stronger effect on group image concern as compared to a positive frame. Thus:

H2: Consumers exposed to negative in-group framing conditions will demonstrate greater group image concern than consumers in a positive framing condition.

The moderating role of social comparison

Social comparison theory clearly posits that people have an innate drive to evaluate their opinions and abilities (Festinger, 1954). It is believed that people gain a better understanding of their abilities and opinions when comparing these with someone else's behaviour (Verkooijen and de Bruijn, 2013; Hammond, 2010). Perceptions of social norms are often used as a measure against which individuals compare their own behaviours (Clapp and McDonell, 2000; Argo, White and Dahl, 2006; White and Dahl, 2007).

More recently, social comparison theory has been applied in studies examining the effects of social factors on health, with the majority supporting the notion that social comparison against other group members plays an important role in the promotion of healthy behaviours (e.g. Christakis, 2008; Christakis and Fowler, 2007; Piko et al., 2005). While social comparison has been regarded as an important factor in influencing behaviours, past studies have established that people will compare themselves to others who are perceived to be either superior or inferior to them across multiple domains, including consumer behaviour (Buunk, Gibbon and Buunk, 2007; Zell and Alicke 2009). Comparisons with those inferior to are expected to elicit negative emotional experiences (such as arrogance), while comparisons with superior individuals are related to more positive behavioural outcomes (Festinger, 1954; Major, Testa, and Bylsma, 1991). It is important to recognise that social comparison can therefore have both positive and negative influences on an individual's behaviour (Festinger, 1954).

Upward social comparisons are often made when individuals compare themselves with someone who is perceived to be superior (Pila et al., 2014; Buunk, Gibbon and Buunk 2007; Zell and Alicke 2009). Previous research has also acknowledged that social comparison with those who are perceived to be superior (in general or superior in a particular activity) can lead to increased motivation, inspiration and intention to improve one's self (Algoe and Haidt, 2009; Lockwood and Kunda, 1997). In contrast, these upward comparisons have also been linked to negative emotions such as envy (Pila et al., 2014), and have been shown to discourage and demotivate individuals in an academic context (Lockwood and Kunda, 1997). Overall, the social comparison concept and the

direction of its effects have received limited attention in sustainability research. Due to the disparate and contradictory findings on the topic in different contexts, this study aims to add clarity to the role of two types of social comparison on behavioural intentions. Our research intent is to provide insight by identifying an important moderator—the social comparison direction (upward or downward) reported by the consumer—that elucidates when positive in-group versus negative in-group framing will be most effective in promoting sustainable behaviours.

Past research suggests that direction of social comparison (downward or upward) can modify the relative importance of pro-social behaviours such as sustainable consumption. For example, when consumers are prompted to compare their group's behaviour in public consumption situations, they think about themselves as a part of a group and are more concerned by the group image and its performance (Michaelidou and Hassan, 2008). Thus, when people are under the influence of social comparison (focus on social norms appeal), they tend to make more ethical choices (Szmigin et al., 2009) and engage in more sustainable behaviours (Goldsmith and Goldsmith, 2011). Also, when a message is framed positively and an upward social comparison is made, consumers have more positive attitudes towards organic products (Michaelidou and Hassan, 2008). However, previous studies have focused on the direct effect of social comparison on behaviour, leaving a gap in the examination of its moderating effect. In order to extend this field of knowledge, the present research suggests that social comparison can moderate the effects of descriptive social norm in-group framing on intention to increase sustainable behaviours.

This research proposes that under positive in-group framing conditions with upward social comparison, participants will present lower levels of increase in intention to perform more sustainable behaviours compared to when under negative framing conditions. This is expected to occur because respondents in the positively framed condition will have lower levels of group image concern since group image is not threatened by the experimental mock-up. However, participants under the negative in-group framing condition are expected to show an increase in behavioural intentions when upward comparison is reported because they will have higher levels of group image

concern. In addition, this research suggests that the presence of upward social comparison in the negative in-group framing will encourage consumers to act in accordance with social goals i.e. increase the number of sustainable actions for the wellbeing of the entire group (Briley and Wyer, 2001). Consequently, the presence of upward comparison is expected to increase levels of future sustainable actions for participants receiving the negatively framed in-group message (as the sustainable behaviour may compensate for high group image concern), but will not change the levels of intended sustainable consumption for participants in receiving positively framed in-group message (as they are not concerned about a threat to a group image given that the information is non-threatening i.e. “the Australians are doing enough”. See Appendix A). Therefore, experiencing upward social comparison will attenuate the effects of negatively framed messaging. Figure 1 presents the theoretical model.

Thus, it is hypothesised:

H3a: Individuals experiencing upward comparison in the negative in-group framing condition will report a significant increase in the number of sustainable actions that they would perform compared to individuals in the positive in-group framing condition.

H3b: When downward comparison is experienced, participants in both conditions will report similar levels of future intentions to engage in sustainable actions.

Method

Participants and procedure

Five hundred and sixty participants (285 females and 275 males) from Australia, ranging in age from 18 to 76 years old, took part in the experiment. Participants included high school or university graduates 58% and technical or further education graduates (35%). Characteristics of the sample can be found in Table 1.

Participants answered questions about gender, age, education and occupation. Participants also received instructions to read a newspaper article about the sustainable consumer behaviour of Australians. This study used a 3-factorial (control group vs

negative in-group framing vs positive in-group framing) between-subject experimental design. Chi-square tests show that the sample was equally distributed in in-group framing conditions: age groups [$\chi = 1.197$, $df = 2$, not significant (ns)], gender ($\chi = 0.336$, $df = 1$, ns).

Table 1. Sample characteristics

Conditions:	Females ^b (n=285)		Males ^b (n=275)		N
	N	%	N	%	
Negative framing	106	56%	81	44%	187
Positive framing	100	53%	87	47%	187
Control	102	54%	84	46%	186
Education:					
High school	80	28%	137	50%	
Bachelor's degree	83	29%	58	20%	
TAFE/VET ^a	98	35%	67	25%	
Master's degree	21	7%	13	5%	
Doctorate degree (PhD)	3	1%	-	-	
Age:^c					
18-34 years	108	38%	50	18%	
35-49 years	77	27%	64	24%	
50 years and over	100	36%	161	57%	

Notes: ^a TAFE refers to technical and further education, VET refers to vocational educational training qualification.

^b Australian population gender statistics (2016 census): males=49%, females=51%.

c Australian population gender by age statistics (2016 census): Males: 18-34 years = 32%, 35-49 years = 26%, and 50 years and over = 42%; females: 18-34 years = 31%, 35-49 years = 25%, and 50 years and over = 44%.

Measures

Descriptive social norm appeal was manipulated using the same procedure as prior research (White and Simpson, 2013). The positive in-group framing message was manipulated with messages that a typical Australian regularly performs 7 out of 9 of the above-mentioned sustainable behaviours. The negative in-group framing message stated that a typical Australian regularly performs only 3 out of 9 of the above-mentioned sustainable behaviours. Intention to perform 9 sustainable consumption actions (see Appendix B) is the main dependent variable of this study. Participants reported their assessment of their intention to perform sustainable consumption practices in the next 6 months (nine items, $\alpha = 0.804$) on a scale ranging from 1 (not likely at all) to 7 (very likely) (similar to Schwartz et al., 2001). Participants were asked to indicate their likelihood of performing the following nine behaviours: 1) reuse before recycling (i.e. continuously reusing resealable plastic bags or other reusable similar items), 2) use non-toxic homemade cleaning products (i.e. combining baking soda and vinegar, etc.), 3) repurpose items that are typically discarded (i.e. glass jars into home ornaments, storage containers, etc.), 4) purchase goods that are environmentally sustainable (fair trade certified products, products with less packaging or packaging from recycled materials), 5) purchase from second-hand/op shops, 6) include more plant-based substitutes for dairy products (i.e. almond, soy, cashew milk, etc.), 7) purchase fewer difficult to recycle products (clothing, furniture, etc.), 8) make sure their home/apartment has adequate insulation to reduce energy waste, 9) consume less meat for environmental reasons.

Measure of participants' group image concern was adapted from Argo et al. (2007) on a 7-point Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree") ("I am self-conscious about how Australians look to others," "I want to present a positive view of Australians to others," "I am concerned with how Australians are portrayed," "I want Australians to be viewed positively by others," "I want Australians to be viewed favourably by others,"). Before the main data analysis, group image concern was

averaged and split at the mid-scale (4.33). Scores from 1 to 4.33 were designated “low concern” whereas scores from 4.34 to 7 were designated “high concern”.

Manipulation checks

Immediately after completing the demographic questions, participants were randomly assigned to one of the in-group framing conditions (positive vs negative vs control). The current study used a positive and negative evaluative lexis for experimental manipulations to prime a positive or negative in-group frame (adapted from Oyserman and Lee, 2007). Analysis of variance (ANOVA) on the in-group framing manipulation check confirmed the main effect of framing ($F(3, 195) = 9.568$ $p < .001$). Posthoc comparison (Howell 1997) showed that participants allocated to the in-group positive frame manipulation were more likely to agree that the newspaper article described the behaviour of Australians as positive ($M = 5.42$, $p < .001$) as compared to those in the control group ($M = 3.76$, $p < .001$) and in the negative frame ($M = 2.32$, $p < .01$). This suggests that the experimental manipulation worked as intended. Similarly, the social comparison manipulation check showed that those allocated to framing conditions viewed the newspaper article as more comparative (M negative = 6.12, M positive = 6.16), than those in the control ($M = 1.40$).

Social comparison priming

In this task, participants were asked to read a short news article about the behaviour of fellow Australians (their in-group). Specifically, the task asked participants in the framing conditions to compare themselves to other in-group members' behaviour: ‘How do you compare?’ Social comparison was measured by asking respondents to rate their performance on the nine described behaviours compared to a typical Australian discussed in the news article on a 7-point Likert scale ranging from 1 (“I am way below a typical Australian”) to 7 (“I am way above a typical Australian”). Before the main data analysis, social comparison was averaged and split mid-scale (4.33). Scores from 1 to 4.33 were designated as “upward” direction of social comparison whereas scores from 4.34 to 7 were designated “downward” direction of social comparison.

Results

Main effects of in-group framing and sustainable behaviours

To test the hypotheses, an analysis of variance (ANOVA) was performed with the direct effect of 3 manipulations (positive vs negative vs control, H1), an interaction between manipulations x group image concerns (low vs high, H1, H2), and a three-way interaction between manipulation x group image concerns (low vs high) x social comparison (upward vs downward, H3).

Firstly, results from the analysis of variance (ANOVA) show that the direct effects of in-group framing on sustainable consumption are significant [$F(2,558) = 3.32, P = 0.01$]. In particular, these findings suggest that participants under positively and negatively framed conditions will have higher levels of sustainable consumption than participants in the control condition. As expected, participants under the negative framing condition reported intentions of more sustainable consumption practices than participants under the positive in-group condition (M negative = 4.06 vs M positive = 2.70; $P = 0.00$). Results from a 2×2 ANOVA revealed that the effect of interaction between in-group framing and group image concern on sustainable consumption is insignificant [$F(,07) = 4.52, P = 0.87, ns$], thus rejecting H1 and H2. Table 2 provides a summary of the results.

Table 2. Summary of results

Variable	Condition		Effects
In-group framing (main effect)	Positive = 4.06	Negative = 2.70	$F(2,558)=3.32$ $P = 0.01$
Social comparison (main effect)	Upward = 3.44	Downward = 5.67	$F(1,897)=2.52$ $P = 0.00$
In-group framing and social comparison (interaction effects)	Upward comparison Positive = 3.2 Negative = 4.22 [$F(2,558) = 11.29, P = 0.00$]	Downward comparison Positive = 4.06 Negative = 3.90 [$F(3,568) = 3.32, P = 0.07$]	$F(1,211)=8.34$ $P = 0.00$

Interaction effects of in-group framing and social comparison

The 2×2 ANOVA results showed that the interaction between in-group framing and social comparison does have a significant effect on sustainable consumption [$F(1,897) = 2.52, P = 0.00$]. That is, consumers experiencing upward versus downward social comparison declared dissimilar levels of sustainable consumption (M upward negative = 3.98 vs M downward positive = 1.88, $P = 0.00$), fully supporting H3.

As expected, when upward comparison was present, participants under the negatively framed condition declared higher sustainable consumption intentions than participants under the positively framed condition [M negative = 4.22 vs M positive = 3.2; $F(1,211) = 11.29, P < 0.001$]. However, more interestingly, when downward comparison was made, participants in both conditions reported similar sustainable consumption levels [M negative = 3.90 vs M positive = 4.06; $F(1, 211) = .56, ns$]. Thus, H3a and H3b were fully supported.

Discussion

Using experimental manipulation for in-group framing and social comparison this study demonstrated key boundary conditions for the observed effects. First, when consumers learn about unsuccessful/negative performance of their in-group members and report upward comparison, they are more inclined to increase their number of sustainable behaviours compared to individuals in the positive in-group framing condition. Second, intentions did not differ for those reporting downward comparison in either positive or negative in-group framing conditions in comparison to the control group. Third, we observed no significant effect of group image concern on intention to increase the number of sustainable actions under any conditions. Fourth, this research demonstrated the interaction effects of social comparison and sustainable consumption. Although previous research has suggested that negative in-group framing in general tends to be more motivating, this research demonstrated that the effects of in-group framing on sustainable consumption might depend upon social comparison. The findings show that in-group framing affected sustainable consumption when social comparison was upward. Messages like ‘Unfortunately, the study has shown that a typical Australian regularly performs only 3 out of 9 of the above-mentioned sustainable behaviours’ have an impact on sustainable consumption only for individuals who experience upward comparison since their performance is inferior compared to the reference group. Participants had similar levels of sustainable consumption when downward comparison was made. The findings showed that, when consumers thought about how their actions compare to others (focus on social comparison), there was a significant difference for framing in terms of sustainable consumption. Thus, pro-environmental messages should use a more social approach such as ‘we must recycle our plastic bottles because our community, unfortunately, is not doing enough’ as the results would likely be positive for both downward and upward comparing individuals.

This research contributes to understanding of how negative framing effects could be reduced on sustainable consumption uptake (Cherrier, 2006), increasing the level of pro-environmental behaviour particularly for consumers who consider themselves as performing worse than the rest of the social group. This research also contributes to

previous studies (Griskevicius et al., 2010) by bringing more evidence about the relationship between sustainable consumption and social comparison.

In addition, these findings indicate the importance of behavioural, psychosocial, and contextual factors on intention to perform more sustainable actions and highlight diverse opportunities to intervene to strengthen community capacity to maintain these behaviours. Overall, our findings show that motivational factors, such as norms, in-group framing and social comparison support behavioural intentions. While framing research argues that motivational factors become less important once a habit is formed (Klockner, 2013; Lally and Gardner, 2013; Ouellette and Wood, 1998), our finding supports emerging research which highlights the contribution of personal motivation (i.e. social comparison) on the development of future habits connected to leading a more sustainable lifestyle.

Managerial implications

This research presents important managerial implications regarding sustainable consumption and environmental campaigns in two contexts: for public policy makers and for business. Firstly, this research illustrates how the findings can help public policy makers. According to Gordon et al. (2011), sustainable consumption needs to be promoted by governments in order to encourage people to behave in a more pro-environmental way. In general, pro-environmental campaigns push consumers into personal actions (i.e. focusing on the personal identity – ‘Only you can help’). These campaigns mostly involve personal sacrifices such as ‘using less’ and ‘reducing self-comforts’ (Schultz and Zelezny, 2003). In addition, previous research also shows that these pro-environmental messages not only rely upon the fact that consumers perceive the issue to be important but also use assertive language (i.e. the imperative form, such as ‘do’ and ‘go,’ leaving no option for refusal) (Kronrod et al., 2012). The results show that pro-environmental messages should use less assertive language when targeting a general audience made up of consumers with different levels of environmental consciousness (Griskevicius et al., 2010). These messages should also use social comparison appeals

focusing on relevant social group behaviour. As demonstrated, social comparison differences can reduce the impact of pro-environmental message framing. When upward comparison was made, negatively framed participants showed higher levels of sustainable consumption compared with participants in the control group. This research proposes that, when social comparison is activated, framing effects will decrease and effectiveness of messages will be enhanced.

Importantly, descriptive social norms with a comparison can be targeted in interventions, with research demonstrating that communicating social norms can lead to short-term reductions in domestic water and energy use (Ehret et al., 2020; Fielding et al., 2013; Nolan et al., 2008). For example, Ferraro et al. (2011) found that a social norm message led to significantly reduced water consumption for two years. In contrast, other types of messages (without descriptive social norm appeal) only elicited short-term reductions in water use (Ferraro et al., 2011). The authors suggest that their descriptive norm message may have elicited longer-term impacts via inspiring higher impact actions, such as installing water-saving devices (Ferraro et al., 2011).

Building on the findings of this research, mobile apps aimed at fostering and maintaining sustainable behaviours (for example EnergyWiz) and energy saving companies could emphasise desirable benchmarks through comparison by providing realistic benchmarks for energy consumption; integrating energy consumption information in a social context; engendering a discussion among the user community; explaining energy use by non-social comparison; and making energy-related feedback accessible on a mobile device.

In summary, communication aiming to induce behavioural change should stress social norm as connected with social comparison to appeal to individuals to perform socially desirable actions. For example, social marketing could include influencers or positive examples that are admired by a specific population. To increase sustainably responsible behaviour, marketers and public policy makers should provide consumers with sufficient information about the group's performance (i.e. social context), and increase personal norms by influencing social norms, concern and ethical thinking.

Limitations and directions for future research

This research investigated how the framing of environmental appeals can enhance future behaviour by looking at whether information only appeals were successful or consumers require an extra nudge, such as negative or positive information about salient group behaviour. Extant literature indicates that a cross-cultural phenomenon called a ‘knowledge-action’ gap occurs very frequently. Hundreds of studies have failed to explain the gap between the environmental knowledge held by individuals and the resulting pro-environmental behaviour they exhibit (Kollmuss and Agyeman, 2002). Consequently, while the type and availability of information should continue to be studied, how this information is being communicated also needs to be further examined (Kennedy et al., 2009; Cheng et al., 2011). This includes the framing of how information is communicated both verbally and visually (Nelson et al., 2019; Nelson et al., 2020).

The limitations of this study are largely related to the use of a self-report questionnaire and survey panel. For one, online panels typically try to use probability recruitment methods, with a clear risk of at least some sample bias. Similarly, hosting the survey online may have biased the sample towards respondents with access to the internet (Borg and Smith, 2018). To minimise these biases, and to ensure that the sample broadly reflected the target population, sampling quotas were applied. Second, self-report online surveys are subject to a number of limitations such as randomised responding and extreme responding (Paulhus and Vazire, 2007). In addition, technical problems can affect the user experience and the quality of an online survey. Future research could combine paper-based and online surveys to increase the reliability of the data collected. To address these limitations, practicable quality appraisal procedures were followed to identify and correct errors—for example, respondents who completed the survey too quickly or answered all Likert-type questions with mid-point responses were excluded. Furthermore, the evaluation of future intention to perform sustainable actions relies on a self-report measure subject to social desirability, and thus does not necessarily reflect an individual's true behaviour. Thus, future research which employs alternative measures of behaviour, such as observation, is recommended. Also, the study did not measure participants’ sustainable behaviour prior to being exposed to experimental conditions.

Further research is also recommended to explore the role of other relevant reference groups (i.e. community, state) for in-group framing of messaging on sustainable behaviour, as well as on the moderators of sustainable behaviour, such as the perceived benefits of performing such behaviours. This gap was noted by Mead, Rimal, Ferrence, and Cohen (2014) who recommend future research to understand the extent to which exposure from different environmental cues, such as the media credibility, had an impact.

Conclusion

Overall, the findings of this experimental study provide important and congruent insights on the effectiveness of informational and social norm messaging as an effective way to nudge people toward pro-environmental behaviour. A conceptual framework of social norm influence was proposed to empirically test the influences of group image concern and social comparison on consumer intention to perform more sustainable behaviors in the future. Social comparison with a typical Australian was tested as moderator while group image concerns was tested as a mediator of descriptive norm appeal influence, since these two variables required further research into their effectiveness. The main findings of the study show that the moderator is positively related with future intention to perform sustainable behaviours. The authors did not find a significant three-way interaction between descriptive social norm appeal, group image concern and social comparison. Marketers can encourage more sustainable behaviour uptake with descriptive norm appeal strategies that motivate consumers to feel that they need to keep up with the rest of the group which may be outperforming them. Also, consumers need to be informed of what exact actions are expected of them.

The findings extend previous research and provide insights into sustainable consumption. In particular, this research indicated that participants experiencing negative in-group framing and positive in-group framing tend to engage in sustainable consumption at different levels when social comparison is reported. As the findings suggested, when negative in-group framing was active, upward comparing consumers were more inclined toward sustainable consumption. In addition, the experience of upward comparison under negative in-group framing conditions increased participants' levels of sustainable consumption to similar levels to those of positive in-group framed participants. Thus, this

research demonstrated that the use of salient identities for positive and negative in-group framing participants can help marketers and public policy managers to increase levels of sustainable consumption.

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Appendix A

Priming in-group framing and social comparison

Condition 1: Control

11

State of sustainable consumption

VANESSA GREY
RICHARD MURRAY



Recent research conducted by ABC in Australia shows that individuals can reduce their impact on the environment by adjusting their lifestyle to a more sustainable one via:

- 1) reusing before recycling (i.e. continuously reusing resealable plastic bags or other reusable similar items),
- 2) using non-toxic homemade cleaning products (i.e. combining baking soda and vinegar, etc.),
- 3) repurposing items that are typically discarded (i.e. glass jars into home ornaments, storage containers, etc.),
- 4) purchasing goods that are environmentally sustainable (fair trade certified products, products with less packaging or packaging from recycled materials),
- 5) purchasing from second-hand/op shops,
- 6) including more plant-based substitutes to dairy products (i.e. almond, soy, cashew milk, etc.)
- 7) purchasing fewer difficult to recycle products (clothing, furniture, etc.),
- 8) making sure your home/apartment has adequate insulation to reduce energy waste,
- 9) consuming less meat for environmental reasons.

Continued on Page 30.

Condition 2: Negative frame

11

State of sustainable consumption: how do you compare?

VANESSA GREY
RICHARD MURRAY



Recent research conducted in Australia shows that individuals can reduce their impact on the environment by adjusting their lifestyle to a more sustainable one via:

- 1) reusing before recycling (i.e. continuously reusing resealable plastic bags or other reusable similar items),
- 2) using non-toxic homemade cleaning products (i.e. combining baking soda and vinegar, etc.),
- 3) repurposing items that are typically discarded (i.e. glass jars into home ornaments, storage containers, etc.),
- 4) purchasing goods that are environmentally sustainable (fair trade certified products, products with less packaging or packaging from recycled materials),
- 5) purchasing from second-hand/op shops,
- 6) including more plant-based substitutes to dairy products (i.e. almond, soy, cashew milk, etc.)
- 7) purchasing fewer difficult to recycle products (clothing, furniture, etc.),
- 8) making sure your home/apartment has adequate insulation to reduce energy waste,
- 9) consuming less meat for environmental reasons.

Unfortunately, the study has shown that a typical Australian regularly performs only **3 out of 9** of the above-mentioned sustainable behaviours (which is not enough to reduce the carbon dioxide emissions).

How do you compare with a typical Australian?


Continued on Page 30.

Condition 3: Positive frame

11

State of sustainable consumption: how do you compare?

VANESSA GREY
RICHARD MURRAY



Recent research conducted by ABC in Australia shows that individuals can reduce their impact on the environment by adjusting their lifestyle to a more sustainable one via:

- 1) reusing before recycling (i.e. continuously reusing resealable plastic bags or other reusable similar items),
- 2) using non-toxic homemade cleaning products (i.e. combining baking soda and vinegar, etc.),
- 3) repurposing items that are typically discarded (i.e. glass jars into home ornaments, storage containers, etc.),
- 4) purchasing goods that are environmentally sustainable (fair trade certified products, products with less packaging or packaging from recycled materials),
- 5) purchasing from second-hand/op shops,
- 6) including more plant-based substitutes to dairy products (i.e. almond, soy, cashew milk, etc.)
- 7) purchasing fewer difficult to recycle products (clothing, furniture, etc.),
- 8) making sure your home/apartment has adequate insulation to reduce energy waste,
- 9) consuming less meat for environmental reasons.

The great news is that the study has shown that a typical Australian regularly performs **7 out of 9** of the above-mentioned sustainable behaviours (which is a great step to reducing carbon dioxide emissions).

How do you compare with a typical Australian?

Continued on Page 30.

Appendix B

List of sustainable behaviours

- 1) reusing before recycling (i.e. continuously reusing resealable plastic bags or other reusable similar items),
- 2) using non-toxic homemade cleaning products (i.e. combining baking soda and vinegar, etc.),
- 3) repurposing items that are typically discarded (i.e. glass jars into home ornaments, storage containers, etc.),
- 4) purchasing goods that are environmentally sustainable (fair trade certified products, products with less packaging or packaging from recycled materials),
- 5) purchasing from second-hand/op shops,
- 6) including more plant-based substitutes to dairy products (i.e. almond, soy, cashew milk, etc.)
- 7) purchasing fewer difficult to recycle products (clothing, furniture, etc.),
- 8) making sure your home/apartment has adequate insulation to reduce energy waste,
- 9) consuming less meat for environmental reasons.

CHAPTER 5. THESIS CONCLUSION

5.1 Introduction

The objective of this thesis was to investigate effects of social norm appeals, group and environmental identities, in-group framing, and social comparison on consumers' moral obligation and sustainable consumption intentions. Recent studies have stressed the need to better understand key determinants of sustainable consumption and their interaction (White and Simpson, 2013; Liang, Kerk and Henderson, 2018). In response to this call, a significant contribution of this thesis is diligent investigation of various types of social norm appeals: descriptive, injunctive and combined, and their impact on sustainable behaviour. In addition, consumers also stand to benefit from the findings of this thesis. The remaining sections of this chapter will summarise these main research findings and their key implications. A discussion of the limitations of this research and future research opportunities concludes the chapter.

5.2 Summary of research findings

This thesis by publication incorporates three papers that address ongoing debate about the influence of social and individual level factors on sustainable consumption. The overall research objective of this thesis is achieved through the development of comprehensive yet parsimonious conceptual frameworks which pull together extant gaps from social marketing and sustainable communication literature. The first paper has demonstrated the significant influence of combined social norm appeal on moral obligation to buy a sustainable product, taking in-group and environmental identity into consideration. The second paper confirmed the mediating effect of inspiration and in-group identity on purchase intention of a sustainable product. The third paper highlighted the significant direct effect of in-group framing and moderating effect of social comparison on intention to increase number of sustainable actions. The three main papers of this thesis reveal and

confirm the profound impact that social norms and social comparison of in-group behaviour have on consumer intentions. Paper I laid the groundwork with its in-depth exploration of four major appeal types. Results identify the conditions under which social norm appeals are more effective than functional product appeals in prompting greater moral obligation to purchase new sustainable products. Although paper I reveals key insights into consumer perceptions of main three types of social norms, paper II further examines underlying cognitive mechanisms based on consumer perceptions of inspiration experienced after being exposed to sustainable marketing appeal. Paper III findings of this thesis provide important and congruent insights on the effectiveness of informational and social norms messaging as an effective way to nudge pro-environmental behaviour.

5.3 Research implications

5.3.1 Theoretical contributions

Despite a rich tradition of assessing key determinants of sustainable consumption, current sustainability literature has yet to investigate the fast-changing consumer environment that consumers are living in, and the implications for sustainable behaviour uptake. In the following discussion, I emphasise the main findings from each of the three papers presented in this thesis.

Paper I investigated social norms types influence on consumer's moral obligation to purchase a personal care product not available in the Australian market. The authors found a significant three-way interaction between social norms, group identity, environmental identity and moral obligation to buy such a product. By merging social norms theory (Cialdini, Kallgren and Reno, 1991) and rational choice theory (Hansen and Schrader, 1997), this study identified how social norm appeals, when directly compared to functional product appeals, can prompt greater moral obligation to purchase sustainable products. The paper I was based on work that suggests that combined norms

are particularly powerful as behavioural directives (Shultz, 2007; Pinto *et al.*, 2019). The first paper showed the conditions under which combined norms appeals were more effective than other appeals, such as higher salience of group identity and environmental identity. In this way, the current research makes a theoretical contribution to extant research by highlighting key novel moderators of normative influence.

Paper II examined the mediating role of inspiration as a motivational state on the relationship between social norm appeals and intention to purchase sustainable products, as well as time lapse to do so. The findings confirmed the strong effects that characterise intentional outcomes of combined norm appeal compared to other types of appeals (Schultz, 2007; White and Simpson, 2013) contributing to the theory of normative conduct. The findings of this paper indicated that inspiration mediates the relationship between social norm appeals and decision to purchase, as well as time lapse to purchase. This contributes to further refinement of conceptual models that need to be employed when investigating the drivers of sustainable consumption.

Paper III findings extended previous research, providing insights into sustainable consumption by combining social comparison and framing theories. In particular, paper III indicated that negative in-group framing and positive in-group framing consumers tend to engage in sustainable consumption in different levels when social comparison was primed. As the findings suggested, when negative in-group framing was active, upward comparing consumers were more inclined to perform more sustainable actions. These findings help develop new theoretical models to better understand the cognitive mechanisms at work.

5.3.2 Managerial relevance

Findings from paper 1, 2 and 3 in this thesis provide several important considerations for both social marketers and consumers. These key implications are elaborated in the discussion below.

First, the findings of paper I reiterate that, in a consumer with high concern for the environment, their environmental identity will influence consumer intentions. This

confirms the importance for marketing and public relations practitioners, policy institutes and government agencies to disseminate information about environmental degradation and its impact on human life. Paper I findings highlight the importance to use a combined approach of descriptive and injunctive norms appeals to ensure communication and advertising initiatives brings changes and facilitate behavioural uptake.

Second, paper II suggests that marketers can influence consumers' intention to purchase green products through the use of effective social norm appeals that make consumers feel inspired. Specifically, combined social norm appeals had the greatest influence on consumers' level of inspiration and, in turn, lead to the intention to buy a product sooner. These findings open possibilities for design marketing campaigns targeted at sustainable consumer behaviour. Based on our findings, such messaging will be most effective if it also emphasises (a) both injunctive and descriptive norm appeals, (b) appeals to salient group identity, and (c) makes consumers feel inspired by the source (i.e, a group that is psychologically close).

Third, paper III demonstrated that messages should also use social comparison appeals focusing on relevant social group behaviour in order to facilitate behavioural change. As demonstrated in paper III, social comparison differences can reduce the impact of pro-environmental messages framing. Paper III proposes that when social comparison is activated, framing effects will decrease and effectiveness of the messages will be enhanced.

5.4 Research limitations and future research directions

The limitations of the three papers are largely related to the use of a self-report questionnaire and survey panel. For one, online panels typically try to use probability recruitment methods, with a clear risk of at least some sample bias. Similarly, hosting the survey online may have biased the sample towards respondents with access to the internet

(Borg and Smith, 2018). To minimise these biases, and to ensure that the sample broadly reflected the target population, sampling quotas were applied. Second, self-report online surveys are subject to a number of limitations such as randomised responding and extreme responding (Paulhus and Vazire, 2007). In addition, technical problems can affect the user experience and the quality of an online survey. Future research could combine paper-based and online surveys to increase the reliability of the data collection. To address these limitations, where practicable quality appraisal procedures were followed to identify and correct errors—for example, respondents who completed the survey too quickly or answered all Likert-type questions with mid-point responses were excluded. Furthermore, while the evaluation of moral obligation to purchase a sustainable product in the future relies on a self-report measure subject to recall error and social desirability, and thus does not necessarily reflect an individual's true behaviour. Same applies to such variables as social comparison and in-group framing. Future research which employs alternative measures of behaviours, such as observation, is recommended. Also, the papers did not measure participants' sustainable behaviour prior to being exposed to experimental conditions.

Further research is also recommended to explore the role of other relevant reference groups (i.e. media, country) messaging on normative perceptions and on the moderators of sustainable behaviours, such as the perceived benefits of performing such behaviours. This gap was noted by Mead, Rimal, Ferrence, and Cohen (2014) who recommend future research to understand the extent to which exposure from different environmental cues, such as the media, affects different variables in the theory of normative influence.

Further research could also examine other moderators of the influence of social norm appeals on sustainable behaviour, such as a collective/individual construal level. This is an emerging field of inquiry which needs more empirical evidence (White and Simpson, 2013; Masson and Fritsche, 2014). In addition, more examination is needed on the role of various reference groups implied in marketing communication. For example, reference group salience might play a role in determining the strength of appeals using group norms. Consumers might respond more to descriptive appeals that feature highly relevant groups, compared to similar appeals that feature groups perceived as less relevant. In

addition, researchers could further examine the processes (including cognitive) underlying the relatively negative responses to injunctive social norm appeals and product functional appeals on the part of those with the collective/individual level of self-activation.

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APPENDICES

APPENDIX A: Human research ethics approval

Our reference 33700

15 July 2019

Associate Professor Sally Rao Hill
Adelaide Business School

Dear Associate Professor Rao Hill



RESEARCH SERVICES
OFFICE OF RESEARCH ETHICS, COMPLIANCE
AND INTEGRITY
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CRICOS Provider Number 00123M

ETHICS APPROVAL No: H-2019-122
PROJECT TITLE: The effect of "you should" message in promoting sustainable consumption: the role of social norms and pride

The ethics application for the above project has been reviewed by the Low Risk Human Research Ethics Review Group (Faculty of Arts and Faculty of the Professions) and is deemed to meet the requirements of the National Statement on Ethical Conduct in Human Research 2007 (Updated 2018) involving no more than low risk for research participants.

You are authorised to commence your research on: 15/07/2019
The ethics expiry date for this project is: 31/07/2022

NAMED INVESTIGATORS:

Chief Investigator: Associate Professor Sally Rao Hill
Student - Postgraduate: Miss Olga Sergeevna Tarabashkina
Doctorate by Research (PhD):
Associate Investigator: Dr Bora Qesja

CONDITIONS OF APPROVAL: Thank you for your responses to the matters raised. The revised ethics application provided on the 14th of July 2019 has been approved.

Ethics approval is granted for three years and is subject to satisfactory annual reporting. The form titled Annual Report on Project Status is to be used when reporting annual progress and project completion and can be downloaded at <http://www.adelaide.edu.au/research-services/oreci/human/reporting/>. Prior to expiry, ethics approval may be extended for a further period.

Participants in the study are to be given a copy of the information sheet and the signed consent form to retain. It is also a condition of approval that you immediately report anything which might warrant review of ethical approval including:

- serious or unexpected adverse effects on participants,
- previously unforeseen events which might affect continued ethical acceptability of the project,
- proposed changes to the protocol or project investigators; and
- the project is discontinued before the expected date of completion.

Yours sincerely,

Dr Anna Olijnyk
Convenor

Dr Jungho Suh
Convenor

The University of Adelaide

APPENDIX B: Human ethics approval



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CRICOS Provider Number 00123M

Our reference 34175

06 January 2020

Associate Professor Sally Rao Hill
Marketing

Dear Associate Professor Rao Hill

ETHICS APPROVAL No: H-2020-004
PROJECT TITLE: The effect of in-group framing in promoting sustainable behaviors uptake in Australia

The ethics application for the above project has been reviewed by the Secretariat, Human Research Ethics Committee and is deemed to meet the requirements of the *National Statement on Ethical Conduct in Human Research 2007 (Updated 2018)* involving no more than low risk for research participants.

You are authorised to commence your research on: 06/01/2020
The ethics expiry date for this project is: 31/01/2023

NAMED INVESTIGATORS:

Chief Investigator: Associate Professor Sally Rao Hill
Student - Postgraduate
Doctorate by Research (PhD): Miss Olga Sergeevna Tarabashkina
Associate Investigator: Dr Bora Gesja

CONDITIONS OF APPROVAL: Thank you for addressing the feedback. The revised ethics application provided on the 23rd of December 2019 has been approved.

Ethics approval is granted for three years and is subject to satisfactory annual reporting. The form titled Annual Report on Project Status is to be used when reporting annual progress and project completion and can be downloaded at <http://www.adelaide.edu.au/research-services/oreci/human/reporting/>. Prior to expiry, ethics approval may be extended for a further period.

Participants in the study are to be given a copy of the information sheet and the signed consent form to retain. It is also a condition of approval that you immediately report anything which might warrant review of ethical approval including:

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- the project is discontinued before the expected date of completion.